THE

MAGAZINE

OF USEFUL AND ENTERTAINING

KNOWLEDGE.

"GET WISDOM: AND WITH ALL THY GETTING, GET UNDERSTANDING."

VOL. I. NEW-YORK, SEPTEMBER, 1830. No. 4.

BIOGRAPHY.

To the Editor of the Magazine of Useful Knowledge.

SIR,—*The following Biographical Sketch of the late venerable Lieut. Gov.* JOHN TAYLER, *is submitted to your inspection, in the hope, that if it shall be thought worthy a place in your interesting Magazine, it may tend to preserve the memory of a Revolutionary Patriot, distinguished for talents, integrity, and patriotism, from premature oblivion.*

A FRIEND TO THE DECEASED.

To PROFESSOR J. N.

My Dear Sir—You ask me to inform you of such of the particular events in the life of the late Governor John Tayler, that highly valued and greatly respected friend of my youth, as may occur to my recollection. As my military duties during the revolution generally confined me to the southern section of the state, my opportunities of personal association with him were chiefly confined to our winter quarters, which were always enjoyed together; the greater part of course of my information respecting his eminent and useful services, was obtained from him in the frequent and unrestrained conversations of the passing moment. And I lament that my memory, now very much shattered by the rigour of nearly four score winters, will fail me while attempting to relate these events, which,

however deep the impression made at the time, I have, alas! suffered to fade away without note or comment. And it is greatly to be regretted that the governor had not committed to paper the various incidents of a life so long and so successfully devoted to the service of his country, and to which I had so frequently and earnestly urged him: and I cannot even now renounce the hope that, upon diligent search, memoranda will yet be found, which will assist you in delineating a life so interwoven with the prosperity and glory of his country—a life which, in every point of view, shone conspicuously amongst the patriots of the revolution, as well in the field as in the cabinet.

Gov. Tayler was born in the city of New-York, on the 4th of July, 1742, the only child of respectable but inopulent parents, his grandmother being nearly related to the late Col. Charles Clinton, the grandfather of the late De Witt Clinton, and survived the death of her husband several years. His father was a gentleman in slender circumstances, but sufficiently opulent to have given his son a regular education, for which purpose he was placed at a classical school, in which he made more than ordinary proficiency, evidences of which repeatedly appeared on suitable occasions: but his father unfortunately dying, he was left an orphan. At the age of seventeen, and determining no longer to be a burden on his widowed mother, he removed to the city of Albany with his father's watch, the only patrimony which he ever received.

A British garrison being at that time stationed at Lake George, this youthful aspirant determined to try his fortune in the camp; and, by the aid of some adventitious funds, being enabled to procure some military stores, he removed to the lake for the purpose of supplying the officers with necessaries. In this business he was singularly fortunate, particularly in acquiring the esteem and confidence of the officers, as well by the urbanity of his manners as by the manly firmness of his character, which tended not a little to the advancement of his future fortunes. On the removal of the garrison the ensuing year to the post at Oswego, Mr. Tayler followed the camp, and although pursuing his former occupation, was frequently and successfully employed in military services, for which nature appears to have peculiarly qualified him. In this situation, it is believed, he acquired a knowledge of the Indian language, which ever after he spoke with fluency, and by which he acquired

the confidence and friendship of many of these sons of the forest; which was of singular importance in the frequent councils held with these people, of which he was usually a leading member.

On the return of the troops to Lake George, Mr. Tayler also returned, still pursuing his accustomed occupation until some time in 1771, when he married Margaret Van Valkenburgh, of the city of Albany, a lady who, it would appear, had been designed by an overruling Providence to promote and secure his happiness; for the writer of this article has often heard him declare, that to her he was indebted for a very large portion of the temporal blessings which a kind Providence had so profusely bestowed upon him. By this lady he had not any issue, but, upon the death of her favourite sister, he took into his family and adopted as his own the infant daughter of the deceased sister, who has been spared as the solace and comfort of his declining years, and the meritorious inheritrix of his ample fortune.

Some time after his marriage he retired to Stillwater, where he purchased a small farm, which he cultivated with skill and enjoyed with pleasure until the year 1773, when he removed to Albany, where he commenced mercantile business on a slender scale. Here he continued enjoying the comforts of domestic society, with means equal to his wants, when the revolution broke out, which called forth all the active energies of his mind and body.

In 1775, when the unfortunate expedition to Canada was planned, General Schuyler, whose intuitive discernment and penetrating eye instantly saw that nature had designed Mr. Tayler for important services, and foreseeing the storm which was about to burst upon his devoted country, sent him into Canada to afford such aid and procure such intelligence as circumstances would admit. Here was laid the first scene of his future usefulness; for strange as it may appear, it is no less true, that Mr. Tayler, though clothed with no military or civil authority, without either commission or command, arranged the 1st regiment of New-York troops, the field officers of which had all returned themselves unfit for duty, and appointed John Graham, a captain of that regiment, as the commanding officer, to whom he issued daily orders, and disposed of the regiment as the circumstances of that eventful period appeared to him to justify.

Gen. Schuyler, who had deservedly reposed the most implicit

confidence as well in the integrity as in the talents of Mr. Tayler, had furnished him with a letter of extensive credit, with directions to procure clothing and other materials for the approaching war; but cautious and prudent as he was, he had omitted sundry articles in his instructions, which were of the utmost importance in the then empty and barren state of our commissariat, among which was the article of *nails*, without which batteaux could not have been constructed, and without batteaux neither the troops nor baggage, ammunition nor artillery, could have been moved. This oversight the comprehensive and perspective mind of Mr. Tayler supplied; for among the variety of articles necessary for the troops, he had procured and brought over a large and general assortment of that all-important article.

Early in 1776, after his return from Canada, he was elected a member of the provincial congress, in which his character as a profound politician was developed to great advantage; for although, as an associate with the master spirits of the age, men of towering talents and profound knowledge, he did not feel competent to take the lead in council, or charm the senate with the splendour of his elocution, yet was he universally allowed by men such as Jay, Morris, Livingston, Benson, and others, to be a man of an acute, discriminating mind, capable of taking a perspective view of every subject in debate, and to trace it through its most intricate and remote consequences. Indeed, in this he was equalled by few, surpassed by none.

In 1777, Mr. Tayler was elected a member of the Council of Safety, a situation at that period, of all others, the most delicate and important, having the surveillance of the community at large, and of the character and conduct of each individual composing that community, the duties of which required all the vigilance of the most vigilant to detect, and all the firmness of the most firm to resist and defeat the efforts of the swarm of tories with which the liberties of his country and the lives and property of its inhabitants were constantly and daringly menaced. For this duty no man whatever could have been more fortunately or more judiciously selected; for as he was indefatigable in detecting, so was he most resolute in obviating and defeating their machinations: and in this he was most singularly fortunate. One instance out of many may be given. He had, by a talent peculiarly his own, discovered that

a certain lady, of high rank and powerful connexions, residing in the neighbourhood of Albany, had been for some time in the habit of regular correspondence with her husband,* an officer of high rank in the British army in Canada, by which means the most important intelligence was speedily and safely conveyed to the enemy through the agency of a confidential messenger. On this discovery, Mr. Tayler made a representation to the council, and moved that a resolution be adopted forthwith to remove the fair correspondent out of the country. To this motion an opposition was made, by some through want of firmness, by some from less virtuous motives, and by many for want of viewing the matter in a proper light. Mr. Tayler, however, in a speech calculated to excite apprehension, and at the same time to rouse resentment, prevailed; and the resolution was adopted, Mr. Tayler assuming the task of seeing it carried into execution. Such a high-handed act as that of expatriating a lady, must necessarily have excited the resentment of the British officer, who, to evince his determination to take vengeance on the mover of this offensive resolution, conveyed to him a message, in which he assured Mr. Tayler, that whenever he caught him he would instantly deliver him up to the fury of the savages. The reply which was made to this savage threat, (the completion of which, alas! there was too much reason to fear,) at once displayed the mild and benevolent character of the man, the purified spirit of the Christian: "If Mr. Tayler should be so fortunate as to have —— in his power, he would most assuredly treat him as a gentleman."

In this assembly of tried patriots, the faithful discharge of whose duties placed them beyond the reach of escape in the event of the failure of ultimate success—who had hazarded life and property in the defence of every thing that renders existence desirable, Mr. Tayler continued at his post, until called on to aid the deliberations of the Congress that was summoned to devise and establish the first constitution of our state government. In this august body of freemen Mr. Tayler again stood forth the champion of the liberties of his country.

It cannot be supposed that a man of such extensive influence, such a daring spirit, should not have been contemplated with more than ordinary solicitude by that herd of enemies which hovered around this devoted city: or that any enterprise calculated to cap-

* Sir John Johnston and Lady.

ture him by surprise or otherwise, should have been omitted: several such attempts were made. The writer of this article had been in the frequent habit of riding out with Mr. T. a few miles for air and exercise, a circumstance that did not pass unnoticed. In one of these little excursions a vidette detached by the enemy, under the celebrated Brandt, had taken his post on the road leading to Schenectady, (the route which was then frequently taken,) in the sure hope of effecting the capture of Mr. Tayler. Contrary, however, to the usual course, the tourists, for reasons which were never explained, suddenly determined to shorten their tour, and return back to town, by which providential circumstance his most miraculous escape was effected; for the vidette, who was afterward taken prisoner, confessed that he could have killed both, but that his orders were peremptory to take Mr. Tayler alive.

Although baffled in this and various other attempts, they did not resign all hope of effecting an object so very desirable. They concealed a small party in Mr. Tayler's stable loft, in the rear of his house, which at that time was situated near the edge of the river, in which they had placed a canoe for the purpose of transporting their intended captive to the opposite shore. In this, however, they were again defeated.—It happened that one of the family servants having accidentally gone into the yard, after the family had retired, was discovered by this party, who prematurely rushed out in the hope of capturing, or entering the house with him; happily, the servant proved too quick for them, got in time enough to close the door against them, and give the alarm.

These, with numerous other instances of the kind interposition of Providence to preserve a life so valuable, and talents so indispensably necessary, at a time when tyrants, and the slaves of tyrants, were polluting our shores, and spreading desolation by fire and the sword among our peaceable dwellings, surely tend to prove, even to the infidel, that the hand of heaven had been graciously extended in our defence.

In this eventful year, when the stoutest hearts began to fail, and the public mind appeared to be paralyzed—threatened with an army the most formidable, numerous, and best appointed that had ever crossed the Atlantic, on the one side, and on the other, by a most relentless and powerful detachment from New-York, whose object was nothing less than absolute extermination,—John Tayler

stood forth—clad in the panoply of an American Patriot—glancing his penetrating eye over the awful scene, and comprehending the full extent of the threatening danger—confident that freemen can only be conquered by their own supineness—determined to make one vigorous exertion to rouse every dormant spark of valour in the youth, and every languid principle of patriotism in the aged, to meet the approaching conflict. To effect this object, he wrote a circular letter, such as Leonidas would have written, and sent copies of it through the several counties and towns of the neighbouring states as well as his own. This letter was most ardently received, recopied, and forwarded immediately throughout the country—read in every town meeting, and delivered from the pulpit of every denomination of christians; and such was the electrical effect that in a very short time the army of General Gates was filled with volunteers to overflowing—magazines of provisions abundantly supplied—the drooping spirits of the soldier revived—the confidence of the officer confirmed—and the capture of that once most formidable British army completely effected!

From that period until the close of the revolution, Mr. Tayler, constantly engaged in the political department, either in the Council, Senate, or Assembly of the state, was often the channel of communication with the commander in chief, who ever considered him as his counsellor and friend. He wanted no letters of instruction; the situation of the state—her dangers—her wants—and her resources, were all so familiar to his comprehensive mind, that he could detail the whole, without the aid of written instructions; and his statements were ever implicitly credited, because they were ever found perfectly correct.

During the period between the close of the revolution and the commencement of the last war, Mr. Tayler was almost constantly returned by the freemen of the county as a member of the legislature, either in the senate or the assembly; and the frequent, and almost unanimous voices of these freemen, sufficiently testify to the steady course of duties which he uniformly pursued during the frequent and violent political storms which agitated the state to its centre; and during the utmost violence of which, as the leading member, the master spirit of the republican party to which he was ever firmly attached, his eye was uniformly fixed upon one only object—the true ultimate happiness and prosperity of his country;

and, although it is scarcely possible to suppose that amid the conflicting passions and wild disorders of the various contending parties which alternately wielded the sceptre of confusion, Mr. Tayler could have escaped the tongue of slander, the sting of reproach, or the malice of political enemies, yet it is believed, that except in one solitary instance, in which his feelings were wounded, his sensibilities roused, and long and intimate friendships disruptured from causes equally beyond his control, and without his agency; an event which he never ceased to deplore, as the most unfortunate occurrence of his life—few men have ever passed through so long and so boisterous a political career, with a character more pure and unsullied.

In 1813, during the last war, Mr. Tayler was elected by a large majority as Lieutenant Governor of the state, in which situation he was continued during the term of nine years; and in consequence of the national election of Governor Tompkins, he for a few months discharged the duties of governor of the state, to the universal satisfaction of all parties; and although the principle evinced by subsequent and recent events would have justified his holding over during the constituted term of Governor, yet in compliance with the will of the people, as expressed by their constituted authorities, he cheerfully retired from the chair of state, without a sigh of regret, or a murmur of complaint.

In this year, when the enemy was making vigorous preparations for an attack on the western frontier, the recollection of the disasters of the preceding year, and the arrangements making to repair them, appearing to his anxious and comprehensive mind to be defective in council, and languid in execution, he resolved not to stand an idle spectator of the passing occurrences of the day, which, to his mind, appeared to be pregnant with the most portentous events. Possessing an intimate knowledge of the country contemplated as the scene of action, and the formidable means of offensive operation within the reach of a powerful, enterprising, and gallant enemy, although holding no rank or authority but that of a private citizen, he determined to communicate his sentiments to the commander in chief, in a letter; which, although written in the seventy-second year of his age, exhibited all the fire of youth, tempered with the experience of age. In this anonymous letter, the precise date of which is not ascertained, after a courteous apology to the

commander in chief of the armies of the United States, and an assurance that the sole motive of the writer is to promote the interests of his country, and the honour and fame of the person addressed, he proceeds to suggest the infinite importance of the post at Sackett's Harbour for a defence of our shipping, so essentially necessary to our future operations. The strong probability that the enemy will make vigorous efforts to possess that post, the consequences of which are displayed in vivid colours: points out the facility by which such a capture may be effected by its proximity to Kingston. Presuming that the general's force is inadequate to its defence in the then state of the army, he proposes a substitute in block-houses; the utility of which he proves by the experience of former campaigns, particularly that under General Wayne; modestly suggests the propriety of ordering about 600 men, uselessly stationed at Greenbush, to Sackett's Harbour; and in fact details the obvious duties of the commander in chief, with a precision rarely excelled.

In a subsequent letter, dated January 7th, 1814, directed to the Secretary of War, at that time on the frontier, after observing that "the unexpected and incalculable loss and dishonour sustained by the capture of Niagara, the ravages of the enemy on the frontier, the treachery and cowardice of one general, the hasty and ill-advised conduct of another, justify his anxiety, and must plead his apology, he suggests his opinion of the useless, if not dangerous position of the army during the winter season at French Mills, in the vicinity of an active, enterprising enemy; that although the troops stationed at that post may possibly repel an attack, yet they cannot annoy the enemy; that by removing those troops to Ogdensburgh, they might make a favourable attack on Prescott, which, if taken, would greatly interrupt the communication between Upper and Lower Canada; that a vigorous attempt might be made on Kingston, and, by the aid of Congreve rockets, the enemy's shipping and the town may be made to atone for the ravages on the frontier; that Sackett's Harbour, a port of infinite importance, is exposed to capture, if the enemy should unite his forces in Upper Canada, of which strong apprehensions are entertained, in which case, a loss of our best seamen and marines must be the consequence. He repeats his confidence in the utility of block-houses, and urges the propriety of building two or more, as well for defence

as for covering. He then hints at the prevailing mania for banks, which, in the existing scarcity of specie, he conceives would be indispensably necessary in the prosecution of the war, and urges the Secretary's influence in their favour.

From these few extracts, most imperfectly made, those and those alone who have a knowledge of the scene of action, the state of the country, and of the contending armies, will appreciate the value and importance of the counsel contained in these letters. And when it is considered that they are the production of an individual who had passed the bounds usually allotted to human existence, we are at a loss which to admire most, the soundness of his intellect or the fervour of his patriotism.

In 1802, Mr. Tayler was elected a regent of the University: in 1814, he became ex-officio chancellor of that learned body; and the last official act of his life was presiding at a meeting held a few days previous to his death. Thus far of his public life and services.

You may, however, possibly expect that I, who had the happiness to enjoy his confidence, friendship, and esteem, for a period of more than half a century, and who had watched at his bed with tender anxiety during the whole of his last illness, should give you some account of his private worth, his moral character, and the religious exercises of his mind, a few hours previous to his dissolution. I observe, then, that Mr. Tayler was a man endowed with great physical, as well as intellectual powers—of a temperament mild, cheerful, and sociable—averse from any appearance of pomp and parade, though few possessed more ample means of indulgence—temperate and indifferent as to his food, and singularly so as to every kind of wines and spirituous liquors, the latter of which he always rejected, and the former he never drank, but sipped, more in the style of a youthful female than of "a bon vivant."

His philanthropy was universal, his benevolence diffusive, and his charities numerous, liberal, and judicious, in the distribution of which he ever kept in view the precept of his divine Lord and Master, "Let not your left hand know what your right hand doeth:" for some of the pensioners on his bounty were unknown to his family until after his decease.

Born of Episcopal parents, and nurtured in the bosom of the Episcopal church, he had ever been distinguished as a firm believer in the Christian religion, and was a regular attendant on her service

in the parish church of St. Peter, in the city of Albany, in which he had for many years acted as principal warden, to which he had been a generous benefactor, and the interest and prosperity of which had been the object of his most anxious solicitude, until some time in 1814 or 1815; when, in consequence of a most unfortunate misunderstanding between her rector, vestry, and members, and conceiving himself to have been indelicately and improperly treated, he, in a luckless moment, withdrew himself, and associated with the *first* reformed Dutch church, to which he continued steadily attached during the remainder of his life.

For years previous to his death he had been a constant and devout student of the Bible, and never appeared more happy than when one of his friends or family read to him portions of the sacred volume, or was engaged in praying with him. Of a retiring and unostentatious temper, he seldom made what are usually called public professions; but a short time previous to his decease, he expressed a desire to partake of the holy communion; but it being understood that the discipline of the dissenting churches was opposed to the administration of the communion in such instances, an application for that purpose was repressed; and before the necessary arrangements could be made with the venerable rector of St. Peter's, nature, alas! had become so exhausted as to preclude the possibility of his receiving that spiritual consolation, which it is well known our holy church would most cheerfully have afforded to the dying penitent.

The day previous to his dissolution, having expressed to him my earnest desire that he would communicate to me the particular state of his mind, what were his prospects, his fears, and the grounds of his hopes and consolation, then at the close of his life, and in the near view of eternity, he expressed himself in the following terms, with strong emotion: "I have been a great and presumptuous sinner. I am utterly unworthy of the mercy of God. I deeply lament that I have suffered so many years of my life to pass away without having made the necessary preparation for this awful hour. I have no hope or expectation of the pardon of my sins or acceptance with God but in His infinite goodness and mercy, through the merits of the Lord Jesus Christ."

Having asked him if I should read a few verses of the Bible, and offer a short prayer with him, he assented with unusual earnestness.

I then read and repeated a few passages, which I conceived to be applicable to his peculiar situation; and kneeling down by his bedside, I offered up (I trust with sincerity) the prayer set forth by our church for sick persons in the last extremity, in which he most devoutly joined, and clasping his hands together with a degree of ecstasy, exclaimed, "O! what a delightful prayer that is." And during the period between that and his death, the ceaseless uplifting of his hands, and the constant but inarticulate motion of his lips, left no doubt on the minds of the witnesses of this awful scene that the ardent aspirations of his contrite heart were constantly ascending to the throne of mercy on the wings of penitence and faith. After a struggle of a few moments, his spirit fled to God who gave it, accompanied by the supplications and prayers of his surrounding and sympathizing friends and family. It may be worthy of remark, that during the whole period of his sickness, he never discovered the least alienation of mind—no, not for a moment.

Thus lived and thus died John Tayler, a man endowed with far more solid virtues than have been generally known, or duly appreciated. He has left a blank in society which will not easily be filled up. Let us, then, my dear friend, who survive this and such like instances of mortality, draw the curtain of charity over the infirmities of fallen nature. Let us not put off the preparation of the heart to the eleventh hour, for we know not what that hour may bring forth. Let us endeavour to avoid the errors and emulate the virtues of those who have gone before us, and diligently prepare to follow them.

I have thus endeavoured to comply with your request. I have given you an imperfect sketch of the little incidents in the life of my friend, which were within my recollection. In perusing this long letter, you will doubtless perceive, that (in legal parlance) I have travelled out of the record. For this, my only apology is a sincere desire to do that justice to the character of the friend of my youth, and the companion of my declining years, for which I must ever regret that my slender talents are utterly unequal—well aware that incidents and anecdotes of this kind are in themselves trifling and unimportant, and can assume an interest only from the character and importance of the distinguished individual to whom they refer, or the eventful period in which they occurred; as such I give them: and if I shall have happily stated a fact which you may think worthy

of notice, or suggested an idea which may assist your pious labours in embalming the memory of a tried friend, a stern patriot, an honest man, and a Christian, with "the odours and spices" of truth, in language worthy of him and worthy of yourself, my object will have been completely effected. With my best wishes for the continuance of your health, and the increase of your happiness and prosperity, I conclude, in the language of the poet,

"Vive vale, si quid novisti rectius istis,
Candidus imperti, si non, his utere mecum."

Scarsdale. W. P.

POLITICAL ECONOMY.

GENERAL REMARKS.

This is an age peculiarly distinguished from any previous one, for its numerous inventions, its general improvement, and thirst for information. We see an evidence of this in every thing around us; we cannot leave our own dwellings without partaking, in a greater or less degree, of the luxuries which man has acquired by inventions just now becoming common among us; we cannot enter a private or public library without finding it filling with works of a scientific and useful nature; nor can we call upon a neighbour without perceiving that he too is desirous of acquiring information which shall be valuable to him as a man, a politician, a mechanic, and a citizen of a country that demands of him his best efforts to preserve her freedom and promote her interests. These circumstances show that our course is *onward;* and as the principle of gravitation, namely, that the greater the distance, the greater the velocity, is applicable to improvement, we have a right to anticipate that our progress, instead of becoming tardy, will be more and more rapid. We say not this in disparagement of the past, but to encourage those who have embarked in the cause which we have ardently espoused, and which we shall endeavour with all our energy to sustain. Nor has this advance been confined to literary and scientific men: our mechanics have equally partaken of the spirit of improvement, and have been impelled forward by the noble example of those who have been, and who were proud to be of their number;

men who contributed their blood to purchase our liberties; men who have assisted to form that beautiful structure, our constitution; and who successfully negotiated the most difficult treaties: when speaking of these, how justly may we exclaim,

> "Great men have lived among us, heads that plann'd,
> And tongues that utter'd wisdom—better none."

These examples are numerous, and they speak the value of those civil institutions which were purchased with the best blood of patriots, and which are the protection and nursery of talent and industry: nor should we forget that these institutions can only be preserved by cultivating the true source and sustaining power of liberty, *knowledge;* general, correct, practical knowledge; which is the balance wheel, and governor of our political engine. With all the thirst for knowledge, however, which characterizes the present age, we fear that the force of this truth is not felt as it ought to be; that the value and importance of useful information is not duly appreciated by *all;* and it will be our object in this article to endeavour to impress upon our mechanics and yeomanry not only the importance of acquiring such information, but of living and acting as rational men should live and act, in a government under which every one is a part of the sovereignty of the nation.

We would not be understood as undervaluing the labour of any one class, or proscribing any lawful occupation, whether it be the toil and weariness of the student and professional man, whose sleep is too often the unquiet dreamings of anxiety; or the fatigue and body-wearing business of him who is early as the sun to his labour, and as constant in his course: each has his peculiar sphere, and society furnishes a demand for the productions of both. But the absolute wants of a community are more readily and immediately supplied by him whose business it is to increase and gather the fruits of the earth, and prepare them for the use of man: let him, then, who is engaged in productive labour, feel that his efforts are blessings to mankind; that he is filling an important place in society. But the labour even of the husbandman should not be merely animal: he should seek information, that he may apply it in facilitating his business; understand the principles of husbandry, and learn, from the efforts of thought, and the various means he may have for the acquisition of information, that the tools of his fathers, and even those of his

youth, may be improved or altogether discarded, and others substituted in their place, which will perform the requisite labour, in manner much more perfect, and in time much more speedy. The avenues of practical information should be sought out, and whenever an improvement can be discovered, it should be adopted. We would not be understood, however, as urging a blind adoption of every new theory, either in mechanics, or in farming; by no means: on the contrary, we urge the necessity of acquiring practical information, for the purpose of enabling the farmer and mechanic to judge correctly of those visionary schemes, which are so often palmed upon them as valuable improvements. Let every man inform himself of the fundamental principles of mechanics; the nature and various uses of the lever, the pulley, the wheel and axle, &c.; the great results produced by the judicious use of manures; the nature of different kinds of soils, and the kind of crops best adapted to them; the influence of dews and rains, and the effect of cold and heat upon vegetation; the relative value of different animals, and the best means of raising them; in fine, every thing which belongs properly to different mechanical occupations, and the philosophical principles of husbandry, and he then need not fear the schemes of the visionist, but we should see a steady and practical improvement in the various branches of labour, and in the science of domestic and rural economy.

Every kind of labour should receive its relative attention, that each may contribute its proportionate and requisite share of the great sum total. Time should be also valued, and system observed. From the nature of man, it is impossible for his constitution to sustain a constant effort of strength, and it therefore becomes an object of inquiry, how much time must be spent in active employment, in order to accomplish the necessary purposes of life, and at the same time give to nature all her requisite rest; and to social enjoyment and relaxation all their demands for making life happy. To this inquiry, perhaps as many answers might be given as there are occupations in society; yet we think, by a careful observation, it will be seen that a very few hours each day, properly employed, in a country like this, will not only suffice to satisfy the absolute wants of man, but leave much to be expended in the purchase of the luxuries of life:—man, however, can labour without injury to his health, six or eight hours each day, and still reserve the same amount for

relaxation and mental improvement—we do not say that this can, or should, be done in all cases, nor would it answer in many; but we do say that much more time might, without injury to business, or the pecuniary affairs of men, be devoted to the acquisition of knowledge: even while employed in the ordinary affairs of life, by properly training and controlling his thoughts, and directing them into the right channels, he might learn much, for nature has so adapted herself to the capacities and wants of man, as to render his mental exertions more vigorous when she can draw him out to contemplate her mighty works. Exercise gives elasticity to his frame, and vigour and quickness to thought. The bustle of the workshop often generates valuable mechanical inventions, and the beauty of nature, and her life-giving atmosphere, inspire the husbandman with some of the noblest images and subjects of reflection in his hours of retirement and rest.

The best knowledge for those who can devote but a small portion of their time to its acquisition, is that which is of a practical nature—first, such as is applicable to the particular business of the person, and then that of a more general nature. Works of a practical nature should be procured, and attentively perused, and their principles compared with the results of experience. Lyceums should be established in every village and section of the country—lectures given on scientific and useful subjects, and the principles of science illustrated by experiments, models, &c.—the greatest care being taken to procure lecturers who have not only a clear and thorough knowledge of the *theory* of the subjects upon which they are required to give lectures, but also a practical knowledge of at least some of them. Another source of knowledge should also be resorted to—periodical publications of a useful kind should be taken by every one who is able to pay for one, and loaned and exchanged among his neighbours, that *all* may have access to information, and draw from the same fount: the history and topography of our country should not be neglected or overlooked; a knowledge of the different soils which cover her surface, the rivers that flow from her mountains, the vegetable and mineral treasures which are to be found in different locations, and the facilities which she offers either by natural or artificial navigation and roads, for transporting the productions with which she repays the toil of the husbandman, from the place of their growth to a market. This information should be definite, and, as

far as possible, correct, that the local and relative advantages of each section of the country may be compared, and duly appreciated. Our whole country is becoming more and more an object of interest, and local attachments are giving place to a more general and national feeling.

From the nature and extent of our country, every one may find a soil suited to almost every kind of vegetation, and a climate adapted to any constitution; or should he prefer to employ his capital in manufacturing, there are streams which have for ages been pouring over deep-worn precipices, that invite the enterprising and industrious mechanic and manufacturer to make use of the power which is now lost. No capital need lie dormant, no individual is necessitated to remain in any one, or undesirable place; the West invites the hardy husbandman; the south yields the planter a rich reward for the labour bestowed on the extensive fields of cotton and cane, and the North and East offer facilities for farming, manufacturing, and commercial business. Our land is one that literally flows with milk and honey, and none need want for the comforts and necessaries of life who are willing to submit to the command, which, though often called a curse, is in truth man's greatest blessing—"by the sweat of thy brow shalt thou eat thy bread."

Let the time come, and we believe it is approaching, when a more general and correct knowledge of science and the arts shall be diffused among the operative classes, and we shall see each individual of our labouring community taking a higher stand. The productions of their labours will be increased, and the labour itself mitigated by the improvements which will be made to facilitate the various manipulations; misery will decrease in proportion as knowledge advances, and plenty and comfort be more generally diffused among the lower classes. We cannot believe that these are the visions of an enthusiast—they are the lessons that wisdom draws from analogy and experience: nothing is more true than that ignorance is the nurse, if not the parent of vice, and that misery is her attendant; certainly, then, it must be equally true, and experience confirms the fact, that knowledge is the cherisher of morality, and that peace and plenty are the smiling handmaids that follow in her train, and diffuse comfort and happiness to those who draw from her fountain.

FREE TRADE.—No. I.

Probably more profound nonsense has been spoken and published, within the last fifteen years, on what has been arbitrarily christened *Free Trade*, than has been put forth on any other subject since printing was invented. The advocates of a free trade project have reasoned, if reasoning it may be called, without the least reference to human society as it now exists, or as it ever has existed. They expatiate most eloquently on self-regulated and unrestricted trade, as though merchants were exempt from the infirmities of human nature, and required no laws to regulate their intercourse, and this in the face of historical evidence that every legislative body in christendom has been more or less engaged, as far back as the history of commerce extends, in perfecting artificial plans for the regulation of commercial intercourse among merchants. Not content with the ordinary acts that regulate and construe contracts, they have rendered the laws doubly complex by introducing into the general code a system solely applicable to portions of their own transactions. To reconcile these acts with the general code, and show how far exceptions in their favour extend, and to reconcile the different parts of the system with each other, constitutes a large portion of the business of our courts of law. Yet, if language has any meaning, the advocates of free trade would at once erase the whole system of mercantile law, which has been perfecting for ages, and leave the traders in a state of nature; or, to use their own words, "leave trade to regulate itself."

It will not avail the defenders of the free trade scheme to say that their maxim of "trade regulating itself," is intended to apply only to nations and not to individuals.

The surplus produce of the farmer is the means, and the only means, by which he can purchase manufactured clothing, and more than one half of this he now buys of the American manufacturer. Will his available means be increased by selling this surplus to foreign manufacturers, and receiving of them in return such articles as he may have occasion to purchase? unfortunately the laws of the country from which he proposes to buy, forbid the introduction of such articles as our farmers have to spare; they may purchase with money, but not with the produce of their farms.

"Sell to other nations," says the *free trade* advocate; "get *their* money, and with it buy of the foreign manufacturer, who will sell cheapest." But such is the state of things, that other nations generally produce their own agricultural supplies, therefore want but little or none of ours. The amount of their purchases from us, in addition to the avails of six millions of exported domestic manufactures, will little more than enable us to pay for the foreign articles which are now imported into this country. If there is a country in the world that will receive more bread stuffs, provisions, &c. than we now supply them with, let the friends of the free trade system point it out. Shall we overstock markets already supplied? Experience teaches us, that it is sometimes policy even to burn an article rather than force it into a market already fully supplied.

But we are not compelled to put hypothetical cases, or reason from a state of things that may *possibly* exist; it *does* exist. We now supply foreign nations with the produce of our farms, to the full extent that they will purchase, and the avails are expended in paying for such necessaries or luxuries as our country does not produce.

Will our merchants and manufacturers be benefited by the free trade system? If the imports of foreign fabrics should be increased, and prices fall, the inducements for men of ingenuity and capital to engage in manufactures would be lessened: A free competition with a nation long engaged in manufacturing (other things being equal) must result in ruin, especially with Great Britain, where capital is unlimited, skill unmatched, the price of labour reduced to the very lowest minimum, consistent with human existence, and where the manufactories have been growing for centuries, under the fostering care, and protecting arm of the government.

If British manufactures were admitted into our markets free of duty, the American manufacturer would be compelled to sell his fabrics as low as the British should sell his. In order that he might do this, those items which go to make up the cost of the manufactured article must be reduced to about the same price as they cost in England. There *can* be no difference but what arises from transportation, and that will amount only to a small portion of the whole cost of the vast quantities of imported fabrics.

Labour is one of the principal items in the cost of all manufactures—this is fifty per cent. lower in Great Britain than it is

in this country. To enable our manufacturers therefore to enter into successful competition with the British, the wages of their workmen must be reduced at least fifty per cent. What then would be the effect of the much lauded system of "Free Trade?" Most assuredly the oppression of the working classes. Would this be wise? Would it be just to heap burthens on our producers? And for whose benefit is this proposed? Is it to enrich the consumers of the nation? The mechanic and manufacturer are consumers as well as the farmer, merchant, &c., and they would be ground to the dust by the adoption of the free trade system; their situation would be worse than that of the miserable operatives of England, for the latter would stand on an equal footing with them in the American market, while the protective laws of his own government wisely secure to him the full and EXCLUSIVE enjoyment of those of Great Britain.

While common sense has any influence, there is no danger that the principles of free trade, in the extent which the terms import, will ever be adopted in the United States. But there is a powerful party, professedly advocates of the general doctrine, who, when brought to the test, ask either an entire or a partial repeal of the duties on commodities imported from *foreign* countries. This is all they mean by "free-trade," "trade's regulating itself," &c. They seek no change in the law-merchant, but merely require the obstructions caused by our own tariff to be lessened or removed.

Before a total, or even a partial repeal of import duties is carried into effect, we are bound to weigh candidly and carefully, the consequences. The advocates of free trade, in the limited sense already adverted to, have never agreed among themselves, with any degree of precision, how far the repeal of duties shall extend; but all agree that a reduction would benefit the nation—how much, they have not yet been able to inform us. There is no variance of opinion, however, among them, as to the manner in which the main benefit is to accrue from the reduction. The duties, they say, are a charge on the imported articles, and just in proportion as these charges are lessened, the prices of those commodities are reduced to the consumer. It would seem, therefore, if the benefit promised is *cheapness*, (and this is the paramount object) that an *entire* repeal of duties will alone produce the greatest possible benefit, and to seek a partial repeal, which would of course only effect a partial benefit,

would be virtually saying that a part of a good thing is as desirable as the whole.

There are among the free trade political economists, philosophers of immeasurable knowledge, if their asquirements are at all proportioned to the number or magnitude of the words they deal out. It would be egregiously unphilosophical to stop short of the greatest good, and so we trust the free-trade philosophers will instruct their followers; we shall therefore, take it for granted, that the most orthodox free-trade creed will require a repeal of all duties on imported merchandize; for however small the duties, they necessarily operate as hinderances to the importation of goods, and consequently diminish the supply that would otherwise be offered to purchasers or consumers. Diminished supplies, all other things being equal, increase prices as certain as cause and effect, and the annihilation of all duties is therefore absolutely required to perfect the free-trade system.

[To be continued.]

NATURAL PHILOSOPHY.

THE PLEASURES AND ADVANTAGES TO BE DERIVED FROM A KNOWLEDGE OF NATURAL PHILOSOPHY.

It is the province of Natural Philosophy to investigate the phenomena of the material world; to analyze the substances of which the earth and all it contains is composed, and to discover the laws which control the action of all bodies, whether solid, fluid, or aeriform, upon each other. Nor does it confine itself to the examination of those bodies which are found upon the surface of the planet we inhabit; but with the aid of the telescope, and the various astronomical instruments which the ingenuity of man has invented, ascends into the boundless fields of space, observes the planets and stars which are scattered in such profusion, and at such immense and inconceivable distances around us;—discovers their relative positions, determines the periods of their respective revo-

lutions, and unfolds the laws which regulate their movements, and preserve the harmony of the material universe. By the aid of the physical sciences, man has been enabled to acquire a partial control over the elements of nature; to render them subservient to his purposes; to facilitate his labour, alleviate his wants, and increase his comforts.

In treating of Natural Philosophy, it is usual to divide it into two great branches, namely, *Mechanical Philosophy*, and *Chemistry:* the first investigates the properties of matter, and the laws which govern its motion:—the second analyzes the materials of which all bodies are composed, ascertains their qualities and uses, and reduces them to elementary constituents. Under the first, are to be considered all those operations which are accompanied by sensible motions, and in connexion with which, both time and space are to be considered. Under the second, are to be arranged whatever relates to changes that are effected by insensible motions;—changes that are produced by the action of the minutest particles of matter upon each other, and which alter the qualities of the substances thus acted upon.

The first great division of natural philosophy, or natural science, comprehends the following branches, each of which is a science, and an important one, of itself; namely, Mechanics, Hydrostatics, and Hydraulics; Pneumatics, Acoustics, Optics, Electricity, Magnetism, and Astronomy. Of each of these, it is our purpose in due time, to treat, in such a manner as to enable our readers to obtain a general knowledge of them; deferring the performance of this task, however, to another time, our present purpose is merely to show the pleasures and advantages to be derived from an acquaintance with the sciences in general.

To explain the pleasures and advantages to be derived from a knowledge of physical or natural sciences, to one who has no caquaintance with any one of them, so as to make him fully comprehend their importance, is a very difficult, if not a hopeless task; some idea, however, of the value of scientific knowledge, may be conveyed to such persons, by calling their attention to the improvements which have been introduced into the various mechanical employments, and the machines that have been invented, to facilitate and relieve the labour of man, all of which owe their origin to this kind of knowledge. He must possess a base and grovelling mind

who can derive no pleasure from contemplating the mighty works of nature, or who has no desire to become acquainted with those laws by which she conducts her ever-varying, but ever-uniform operations; but in the minds of most men there is implanted a curiosity, a desire to know something about that which is presented to our senses, or of what we hear: when an animal, for instance, is first seen by us, we derive a pleasure in viewing it, although it may be naturally disgusting, especially if we have before heard much of it, and our curiosity prompts us to inquire all about it, from whence it came, what is its food, its habits, its disposition, and its use; if we see a new machine, we are anxious to know for what purpose it is intended, how it is to operate, and upon what principle it is constructed; in short, whatever is new, or seen by us for the first time, whether it be the production of nature or of art, awakens our attention, and inspires a desire to become acquainted with its properties and uses, the gratification of which affords us a real and rational pleasure. If then we derive so much pleasure from viewing the productions of art, and the minor works of nature, how exalted must be the delight of him who, guided by the light of science, boldly enters the labyrinth of nature, becomes acquainted with her laws, and perceives the endless chain of causes and effects by which she conducts her mighty operations; how, with the aid of the universal law of gravitation, worlds, and systems of worlds are preserved in universal harmony, while wheeling their courses in millions of orbits, all variant, yet all harmonious; all tending to fly off, yet all kept within their proper spheres, revolving upon their own axes, and around a common centre; how, by those wonderful laws that regulate the motions of fluids, a pound of water may be made to balance a hundred tons; how, by the pressure of the atmosphere, water is prevented from escaping in vapour at a low temperature; how heat is set free by combustion; how the same ingredients, by being combined in different proportions, form substances the most salutary, and even essential to the support of life, or the most destructive to it; how the same substance which forms the glittering diamond, becomes fatal to human life in the shape of *carbonic gas*, and also causes that peculiar sparkling appearance and tart taste of soda and mineral waters; in short, perceives how simple, how perfect, how uniform, how infinite, how sublime, and how wonderful, are the laws, the productions, the changes, and operations of nature!

The greatest difficulty which he has to surmount who would persuade mankind to become better acquainted with the phenomena of creation which every where surround them, is to convince them that a knowledge of these things is not beyond their reach, or above their comprehension; but that they *can* acquire it, and with much less trouble than they apprehend, provided they will only apply themselves to its acquisition. There is a fixed and obstinate prejudice in the minds of the uneducated, that prevents them from listening to, or becoming acquainted with the simple truths which philosophy unfolds: the very terms which we are obliged to use to express the kind of knowledge we wish them to acquire, carry with them, to such minds, the idea of something difficult to be understood, something abstruse, something that requires much learning, and years of study, to comprehend—this is an erroneous idea: we will not say that a man may acquire a knowledge of all the various branches of natural philosophy without the exercise of thought, but we have no hesitation in saying, that he may obtain a *partial* acquaintance with *some*, nay, with most of them, without the exertion of a greater mental effort than is required to understand almost any mechanical business. For example—we know that by the law of gravitation, all bodies are attracted toward the earth with a force proportionate to the quantity of matter which they contain; and we also know that the velocity of all bodies of greater specific gravity than the atmosphere, (that is, heavier, bulk for bulk) increases when they fall from a height to the earth, as they descend. To learn what is the ratio of this increase, is one of the first lessons of the student of natural science, but it is very easily learned, being simply that *the velocity increases in proportion as the square of the distance;* or as the odd numbers, 1, 3, 5, 7, 9, 11, and so on; that is, that the body falling sixteen feet the first second (this being the distance through which a body ordinarily descends the first second) will descend through three times the space, or 48 feet the next second, five times the space, or 80 feet, the third second, and so on. Now, we apprehend that any ordinary person could easily learn this fact, and having done so without a knowledge of its application, might be surprised if told that he had acquired a knowledge of one of the fundamental principles of Natural Philosophy. "But," says the farmer, and the mechanic, (and we might just as well mention some other classes of persons) "suppose we were to acquire a knowledge of

these matters, of what use would they be to us—what benefit should we derive from them?" Setting aside the *pleasures* which they afford to him who delights to contemplate on all that is grand, and beautiful, and beneficent in nature, we should think that the *practical* advantages of a knowledge of the natural sciences were too obvious to render it necessary to mention, and so various as almost to preclude an enumeration of them; indeed, there is not an individual in the community who either does not, or might derive some positive advantage in his occupation, or add to his wealth and comfort by an acquaintance with them; nor is there an occupation, at the present day, especially among those termed mechanical, that does not put into operation some one of the principles of these sciences, though it may not be understood by him who avails himself of it.

It is, or ought to be, the business of the farmer to understand the nature and component materials of the different kinds of soils and manures, that he may be able to judge what kinds of the latter are best adapted to any particular kind of the former, and will ensure the greatest production; nor should he be ignorant of the qualities of plants, and the kind of soil and manure most congenial to their growth—this, chemistry alone will teach him. We admit, that a farmer *may*, perhaps, get along tolerably well, without this knowledge, provided he labours hard and incessantly, is very economical, and expends little or no money in educating his children; but he who *has* it, and to it unites a *practical* knowledge of husbandry, will certainly manage his farm much more understandingly, will keep his land in much better condition, from knowing how to make manure, and what kind to apply, and will consequently be much better rewarded by the abundance of his crops.

We know the difficulty of convincing our farmers, (especially those who think there are no better implements of husbandry now than their great-grandfathers had, and that they must also be used in the same way,) that it is impossible to introduce any improvement into the art of husbandry, or that it has not already arrived at the very acme of perfection: it is, however, not less true that there is room for very great improvement in this branch of American industry.

But if the farmer be inclined to doubt the advantages which he may derive from a knowledge of Natural Philosophy, the mechanic,

the manufacturer, and the artist, will readily concede its importance to them: to the ship-builder, the manufacturer of steam-engines, of optical, and other instruments—of machines—to the watchmaker, the mason, the carpenter, the mill-wright, the iron-founder, and innumerable other craftsmen, a partial acquaintance, at least, with mechanical philosophy, is indispensable; and equally important to the druggist, the dyer, the brewer, the bleacher, the tanner, &c. &c. is a knowledge of chemistry. "In truth," says an able and distinguished writer, "though a man be neither mechanic nor farmer, but only one having a pot to boil, he is sure to learn from science lessons which will enable him to cook his morsel better, save his fuel, and both vary his dish, and improve it." It is impossible for any man to look at the present state of the world, and doubt, for a single moment, the importance of the useful and refined arts. No nation or people ever arrived to any degree of perfection without them—in fact, a knowledge of Mechanical and Chemical Philosophy, upon which these arts are based, is the distinguishing mark between savage and civilized man; nay, civilization itself is but the refinement which we derive from the enjoyment of those comforts and luxuries which we obtain by means of them. Let us look at the condition of man in his savage state, and then view him as a member of civilized society. The savages of this country, when first discovered by Europeans, were but a few removes from the wild beasts that roamed in common with them through the forests of this western wilderness: naked, or clothed in the skins of those beasts whose flesh afforded them a meager and uncertain support, they possessed no other weapons with which to kill their game, or defend themselves against an attack, than arrows and spears, whose points were hardened by the fire, or formed of stone or bone;—no other habitation to protect them against the inclemency of the elements, than a rude hut, formed of bark, or of trees, cut by a hatchet formed of stone; no supply of food but the precarious productions of the chase; sleeping away a great portion of their time, and only aroused to action by the calls of hunger, the thirst of blood, or the spirit of revenge. How different is the picture of man as a member of civilized society! "every part of his body covered with the products of different chemical and mechanical arts, made not only useful in protecting him from the inclemency of the seasons, but combined in forms of beauty and variety;

creating out of the dust of the earth, from the clay under his feet, instruments of use and ornament; extracting metals from the rude ore, and giving them a hundred different shapes for a thousand different purposes; selecting and improving the vegetable productions with which he covers the earth; not only subduing, but taming and domesticating the wildest, the fleetest, and the strongest inhabitants of the wood, the mountain, and the air; making the winds carry him on every part of the immense ocean; and compelling the elements of air, water, and even fire, as it were, to labour for him; concentrating, in a small space, materials which act as the thunderbolt, and directing their energies so as to destroy at an immense distance; blasting the rock, removing the mountain, carrying water from the valley to the hill; perpetuating thought in imperishable words, rendering immortal the exertion of genius, and presenting them as common property to all awakening minds—becoming as it were the true image of divine intelligence, receiving and bestowing the breath of life in the influence of civilization."

We conclude, by asserting in the language of Mr. Brougham, "that the pleasures of science go hand in hand with the solid benefits to be derived from it: that they tend, unlike other gratifications, not only to make our lives more agreeable, but better; and that a rational being is bound by every motive of interest and of duty, to direct his mind toward pursuits which are formed to be the sure path of virtue as well as of happiness."

AGRICULTURE.

MANURE.

Every practical gardener knows the value of manuring his ground. But manure, if purchased, is too expensive for farming in general, and can, therefore, only be applied, profitably, near to cities, where the transportation is cheap and convenient, and where the products of the soil command a ready market. Nor does any farm, without great care and economy, produce more than one half the requisite quantity for the tillage land. It is for this reason that composts have been resorted to, with advantage and profit. The slovenly and negligent farmer, permits the season to pass unheeded, and unimproved. Composts are frequently better for both the land and the crop, than ordinary stable manure. Where the soil is a stiff *clay*, the introduction of *sand* into the compost improves the land, by partially destroying its adhesive quality ; thus rendering it more porous, less liable to bake in hot weather, and consequently more susceptible of the night dews. On the other hand, if the soil is *light* and *sandy*, the introduction of *clay* into the compost is advantageous. Besides, in light, sandy land, stable manure, in dry, hot weather, burns up the crop, and soon loses all its quickening or fermenting quality. So far as our experience extends, and the subject has received great attention for different years in succession, we would prefer a given quantity of a compost judiciously prepared, to the like quantity of stable manure, if we must be confined to one kind only, and more especially in a dry, hot summer.

The season has now arrived, when the provident farmer is called upon to make arrangements for his compost, by carting into his barn-yard the necessary materials. Among these, pond mud, if it can be conveniently procured, is an excellent ingredient. This should be obtained, however, before the autumnal rains set in ; besides, its quality is improved by an exposure for a few weeks to the operations of the sun. Weeds, of every description, leaves, potato-tops, every species of vegetable substance, should be carted into the yard, and left, until the beginning of November, to be trodden down by the

cattle foddering on them. A portion of clay or sand, according to the description of land, should also be used.

About the beginning of November, the compost bed should be formed as follows:

First, Let all the contents of the barn-yard (having kept, and keeping, the stable manure separate) be thrown up into a heap or pile.

Second, Spread a layer of these materials about six inches in depth or thickness, on the cleared ground, the size that it is proposed to make the bed, which, however, can always be extended, if it is at first laid down too small.

Third, On the surface of these materials spread unslaked lime, in sufficient quantity to be distinctly perceptible.

Fourth, Then spread a layer of two to three inches of stable manure. And in this order continue to raise the bed to the height of about four feet; after which it will become inconvenient to use the wheel-barrow in getting up the materials for the different layers, or strata.

By the first of December, the bed, which was originally four feet, will have shrunk to about two and a half feet. It is then to be turned and formed anew, which can be readily done by using a good spade. The but-end, or that portion of the cornstock which is not valuable for fodder, should now be cut up with a hatchet, or axe, into pieces of eight to twelve inches in length. A layer of the original bed should then be spread upon the ground, six or eight inches in thickness, by commencing at one end of the bed, and spading or digging it regularly down to the bottom. On this layer, scatter a portion of cornstocks, so as to be two to three inches in thickness; then about the same quantity of lime as at first. The lime will impair, if not destroy the vegetative quality of any seeds that may remain among the weeds. Let your strata be continued in this way, until the bed is completely turned. To the indolent, this may appear an Herculean task; but the whole labour of a bed containing three hundred wagon-loads, can be performed by two men in eight days. And the quantity of good manure which any farmer may thus obtain, will be increased at least fourfold.

Early in March, or as soon as the frost will permit, this heap, or bed, must be again turned, for the purpose of giving it heat, and producing fermentation. The operation of *turning* is to be perform-

ed in the same manner as it was in December, making only *two* layers, or strata. One (taken perpendicularly from the heap) about seven or eight inches deep or thick; and one of stable manure, about two or three inches thick. In turning the heap with the spade, care should be taken to break up the lumps, if they should appear to adhere very closely or solid, from the operation of the frost, or any other cause.

We venture to assert, that any provident, judicious farmer, who will pursue our recommendation on this subject one season, will never afterwards abandon it.

TRANSPLANTATION OF TREES.

Transplanting trees or shrubs is an operation of great simplicity, but in order to ensure its success, it is necessary to attend to the proper management in transferring them to their new position, and to the selection of the best subjects for transplantation. The directions which might be given, resolve themselves into the plain maxim, to imitate nature. The tree should be taken at the proper season, with all the natural appendages which can be taken up with it, and placed in a situation agreeing as nearly as possible with its original soil and exposure. The root generally requires to be shortened to detach it from its original site, but care should be taken not to injure the small fibres or radicles which cover the branches of the root, and they should not be suffered to become dry, by exposure to the air; and as much of the natural soil as can be made to adhere to them, should be retained. They should be placed in a pit as deep, or very little lower than their original depth. The hole for its reception should be large enough to admit the full extent of the branches of the root, without bending or restraining them, and then they should be covered with a soil rather richer than that which originally formed its bed. The earth should be gently heaped upon the roots, so as entirely to cover every part, and a moderate watering completes the operation.

It is a common practice in setting out young trees in our public walks, to place around the stem a quantity of manure, or street gatherings, in their recent state. The effect of this, so far from being beneficial, is highly injurious to the tree, since in this state a fer-

mentation takes place, and the heat occasioned by it is very apt to kill the tree, or at least to prevent its vigorous growth. Manure should never be applied unless it is well rotted, and mixed in proportion with loam; and it is quite obvious that if it is applied at all, it can be of little use around the body of the tree where there are no roots to be affected by it. To be productive of any good, it must be placed at some distance from the trunk, around the tree, where the real roots extend.

Want of success in transplanting trees frequently arises from an improper selection being made in the individual on which the experiment is made. It is scarcely possible for a tree or shrub to thrive vigorously, if it is removed to a place which is entirely different from its ordinary situation and natural habits, and yet it is common to observe in our markets exposed to sale, shrubs and trees taken from their dark swamps and shady woods where they have been perfectly sheltered from the violence of the sun or weather. When planted in our gardens or walks, they uniformly disappoint expectation, and die at last, if they ever vegetated in their new situation.

So tender are some trees, that if when a wood is cut down some of them are left standing, they decline, and soon after die for want of the protection and covering they had been accustomed to—and hence, generally, trees or shrubs taken in their wild state, from their native habits, seldom survive the removal, unless they are taken when very young, or they happen to grow in an insulated and unprotected place, by themselves.

With proper management trees of the greatest size may be safely transplanted to any distance or situation; and within a few years past the principle just mentioned has been applied, with great success, in transporting trees of very large dimensions from considerable distances, to cover with the vegetation of 20 or 30 years tracts of country where no trees formerly grew. A large tree is selected which grows exposed to the full influence of the light and air, and its larger roots at a few feet from the trunk are entirely separated, and the earth loosened around them. In this state it is suffered to remain one or two years in order to repair the injury done by dividing the roots, and to give it time to make new ones, which can be more easily removed. It is then taken from its bed by means of a long pole attached to the axle of two wheels which is brought along side of the tree as it stands, and the tree is firmly tied to the pole:

the ropes at the extremity of the pole are then drawn drawn by the strength of several men, and as it descends the tree is torn gently from its bed, and lays at last horizontally, with its trunk on the wheels, by which it may be carried any distance. A large hole is dug some time before it is ready to receive the tree, and by carefully disposing the small fibres, and arranging the whole similar to its natural position, the entire tree, without any of its branches being lopped, will vegetate in its new situation, as thriftily as if it had always grown in the spot.

Trees should only be transplanted in the fall, after they have lost their leaves, or in the spring, before they have began to appear. Yet they can sometimes be transplanted, if the roots can be taken with the earth enclosing them, at any season of the year, even in full leaf.

PNEUMATICS.

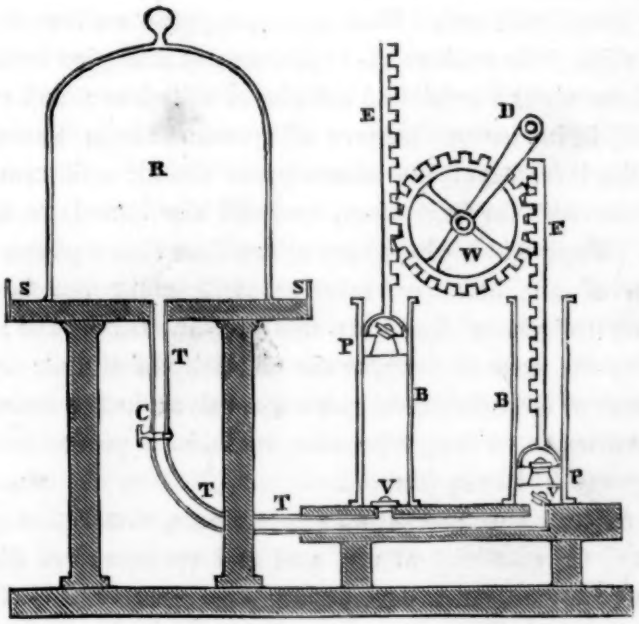
[Continued from page 77.]

It is a wise provision of Providence that oxygen, or the vital portion of air, is heavier than nitrogen, and that which we exhale from our lungs, lighter than the common air; as by this law, that which has become impure by being inhaled, or by other means, immediately rises, if not confined, above our heads, and gives place to that which possesses a greater portion of oxygen. There are some kinds of gas, however, which have a greater specific gravity than oxygen, such as carbonic acid gas, &c., the inhalation of which is known to be so fatal to animal life, and which is usually found settled at the bottom of wells and caves, though seldom in any other than a limestone country.

But although oxygen is so strong a supporter of combustion, that by its aid not only iron and other metals, but even the diamond itself, may be made to burn like wood, and with a brilliancy and intensity of light scarcely supportable by the human eye, yet it is not of itself combustible. We have seen that, constituted as animals are, though they cannot live without this substance, yet in a pure state it is fatal to life, and hence the necessity of its being diluted by a mixture of another gas; this dilution is as necessary for the

preservation of matter against conflagration, as it is for that of animal life, for did the atmosphere consist of pure oxygen, every substance almost in nature would take fire the moment it was considerably heated, and a universal conflagration would be the consequence.

Air is one of the most elastic substances in nature, and its elastic force is always in proportion to its density; like water and other fluids it presses equally in all directions. It is worthy of remark also that the elastic force, or pressure exerted by the air against the sides of a vessel in which it is confined, is increased in precisely the same proportion in which the space it occupies is diminished, and *vice versa*. Another law of this substance is, that it always acts with a force exactly proportioned to that by which it is acted upon. One of the most ingenious and valuable inventions of philosophy, is the air pump, by means of which many of the properties of air have been tested, if not discovered, and particularly that of its expansibility or elasticity. The following is a sectional view of this instrument.



R is a glass vessel called a *receiver*, shaped something like a bell, and is placed with the mouth downwards, upon the pump-plate S S, so

tight that no air can get in; T T is a tube leading from the receiver to the two pump-barrels, B B, and furnished with a stop-cock, C; V V are valves in the bottom of the pump-barrels, opening upwards, so that air may pass through them from the tube into the barrels, but cannot return.

P P are two pistons, fitted air-tight in the barrels, and furnished with valves similar to V V, which also open upwards. The piston rods are furnished with racks, E E, which are worked by a toothed wheel W, which is to be turned backwards and forwards by the handle D, the piston being by this means alternately raised and depressed.

To understand how the pistons exhaust the air from the receiver, let us suppose the right hand piston depressed, while the left is elevated: now by turning the wheel W toward the left, their positions will be inverted; while this is going on, the valve in the right hand barrel will be opened, and that in the piston closed, consequently the air in the tube will rush out and follow the piston. As the left hand piston descends, its valve being open, and the valve in the barrel closed, all the air which was between them when it began to descend, has passed out. Now again, suppose we turn the handle D to the right, it is evident that the moment it begins to move, the valves in the right barrel and left piston will close; and as the left piston will in its ascent remove all pressure from above on the valve in the left barrel, the elasticity of the air still remaining in the receiver will force it open, and fill the barrel as the piston ascends. Thus it is evident, that every time either piston ascends, a portion of air, however rarefied, will enter the barrel, and every time the piston descends this portion will escape; at least this will be the case so long as the elasticity of the air remaining in the receiver is sufficient to raise the valves in the barrels; and when it ceases to do that, a *vacuum*, sufficiently perfect for all practical purposes has been formed.

Many curious and interesting experiments, illustrative of the expansibility, or elasticity of air, and the resistance of the atmosphere, are shown by this ingenious instrument. If a bladder, containing a very small portion of air, be tied tight, and placed under the receiver, upon exhausting it, as the air is gradually withdrawn the bladder will as gradually distend, till at length, when a vacuum is formed, it will have the appearance of having been inflated by for-

cing air into it ; but as there is no more air in the bladder now than when it was first introduced under the receiver, when that which it contained occupied but a small space, it is evident that the removal of the external air by means of the pump, permits the internal air to enlarge by its own expansive or elastic force, and this force being exerted upon the internal surface of the bladder, swells it out, and thus gives it its present appearance ; but in proportion as the internal expands, its elasticity is diminished ; as, however, the diminution of the external pressure in this case is in a still greater proportion, the expansive force of the internal air predominates, and swells the bladder.

If a withered apple be placed under the receiver, and the air be then pumped out, the apple will swell out and become plump like a fresh one, for the same reason as the bladder does : so if an egg be placed at the bottom of a glass jar filled with water, and introduced under the receiver, upon exhausting the receiver, fine streams of air will be seen to issue from the egg and rise through the water ; the egg will also be expanded, and perhaps broken by the force of the air which it contains. Upon letting in the air again the egg will contract to its former size, but its pores will be filled with water instead of the air which escaped from it.

To show that it is the resistance of the atmosphere which prevents light bulky bodies from falling with the same velocity as heavy ones, take a dollar and a feather, and so arrange them in an exhausted receiver as that they can be dropped at the same moment ; let them fall, and though one is a piece of heavy metal, and the other one of the lightest of substances, yet they will both descend with the same velocity, and reach the bottom at the same instant. This also shows that the difference between light and heavy bodies is merely relative, both in fact being acted upon alike by gravity, but the velocity of one being lessened by the greater resistance which, on account of its bulk, it receives from the medium through which it falls.

Nothing more clearly and satisfactorily demonstrates the elastic force of the air than the well known instrument called the air-gun. By means of a condenser, which is an instrument the opposite of the air-pump, a quantity of air is forced into a strong receiver, generally in the shape of a ball, by means of a piston working in a barrel (attached to the receiver) in which it it is fitted air-tight. At

the bottom of the barrel, and forming a part of the receiver, is a valve opening inwards so as to allow the entrance of the air, which is forced down by the piston, but which, the moment the external pressure is withdrawn, is closed by the force of the air within, which is thus prevented from rushing out. When the operation of filling is completed, the receiver, which is now a magazine of compressed air, is detached from the barrel and piston, and attached, by means of screws, to the stock of the gun, in such a manner that a communication exists between it and the barrel of the gun. When used, a bullet is placed in the barrel, and a portion of the compressed air, by means of proper mechanism, is suffered to rush from the magazine into the barrel behind it: the force with which this portion of compressed air rushes out and expands itself, drives the ball from the gun with a velocity sufficient to carry it 80 or 100 yards. A number of balls may be discharged in this way, with great rapidity, without replenishing the magazine, but the force with which they are driven from the gun will decrease at each successive discharge.

The conveyance of sound through the atmosphere is owing to that quality of which we are now treating, namely, its elasticity. Sound is merely the vibrations of a sonorous body, such as a bell, a drum, the string of a viol, &c., communicating motion or undulations to the surrounding medium, and carried by it from particle to particle, till they reach the ear of the hearer; the sensation which they produce upon the tympanum, or drum of the ear, is what we call hearing; no body that is not elastic will either produce or convey sound.

Innumerable facts might be adduced, and experiments made to prove, that an impulse is communicated to the air by sonorous bodies, and transmitted by it to the ear. The jar of the windows, and the shattering of crockery, produced by the discharge of heavy cannon, is a case familiar to almost every one. It is also beautifully and conclusively illustrated by the fact, that if a person sound any note on a wind or other musical instrument, which shall be in unison with the string of a viol near by, that string will vibrate, and give the same sound without being touched by any other substance than that of the surrounding air. A few years ago the writer of this, while sitting alone in a room, on a warm sunny sabbath in October, admiring the variegated livery in which nature now appeared,

and enjoying the death-like stillness that "reign'd o'er the scene," was surprised to hear a sound resembling that of an Æolian harp, apparently issuing from a viol that stood in the room; it continued for a few minutes and ceased—began, continued a short time, and again ceased. Curious to ascertain what could be the cause of this unusual and delightful music, he put his ear to the instrument, and found that it proceeded from it. Of the subject of *acoustics*, or the philosophy of sound, he was then entirely ignorant, but surprise and curiosity induced him to examine closely the strings of the viol, when he perceived one of them vibrating; watching this closely for some time, he observed a bee humming about the window, and occasionally lighting; when the bee lit upon the window, the vibrations of the viol-string ceased, but when it again commenced its humming, which was in exact unison with the A string of the viol, that string would also begin to sound: the mystery was unravelled, the circumstance made a strong impression, and is now related as an illustration of the principle that sound produces, or rather is, a vibration of the medium surrounding the sonorous body.

We have before stated that the elasticity of air was precisely in proportion to its density, and we now state that its power of propagating or conveying sound is in the same ratio; a proof that this power depends upon its elasticity. To test this, place a bell under the receiver of an air-pump, in such a way that it may be struck. Before the air is pumped out, the sound of the bell may be distinctly heard; but as the air becomes more and more rare by a portion of it being pumped out, the sound will gradually become less distinct, until, a vacuum being formed, it is entirely inaudible. If the air be again gradually let into the receiver, the sound of the bell will as gradually increase, until it is heard as distinctly as at first, though not until the receiver is again filled with air. There are few persons who have not observed how much more distinct they can hear the sound of a distant bell in cold weather than they can in warm, or in the morning and evening, than at noon-day; this is owing to the circumstance that the air is at such times much more dense and elastic than when it is warmer. By means of the exhausted receiver, we perceive that the sound is weaker than ordinary in a medium rarer than the atmosphere, and that it ceases to be heard when the vibrations are formed in a vacuum. If, instead of placing the bell under an exhausted receiver, it be placed in one into which

a quantity of air has been forced, we shall find that its tones are increased in strength, precisely in proportion to the degree of compression which has been given to the air surrounding it. These experiments are deemed sufficient to show, that the conveyance of sound through the atmosphere is owing to the elasticity of the latter.

But though air is the most general medium through which sound is conducted, it is neither the only, nor the most perfect conductor of it. If two stones be struck against each other, or a bell be rung under water, the sound can be heard at a considerable distance by a person under the same body of water. If a person scratch with a pin the end of a stick of timber, if it be *sound*, a person at the other end will hear it by putting his ear close to the stick, though it be 80 or 100 feet long; or if a watch be placed on one end, its ticking can be distinctly heard by a person at the other—this, however, will not be the case if the timber be not perfectly *sound*.

It has been ascertained, by various experiments, that sound travels through the medium of the atmosphere at the rate of 1142 feet per second, or about thirteen miles per minute, when not impeded by contrary currents of air; but all substances do not conduct sound with the same velocity; iron, for instance, will conduct it with a velocity of 11,865 feet per second, or about ten and a half times greater than the atmosphere: this was ascertained by Biot, a distinguished French philosopher, by some beautiful and ingenious experiments which he instituted at Paris; and we recollect to have lately seen an account of some nicely conducted experiments made by a gentleman in England, with similar results. At the extremity of some cast-iron pipes joined together, and upwards of 3,000 feet in length, Biot placed a metal ring of the same diameter as the aperture of the pipes: in the centre of this ring, in the mouth of the tube, he suspended a clock-bell and hammer, in such a manner that the hammer could strike the ring and the bell at the same time, so that the sound of the ring would be transmitted to the other end of the pipes, through the conducting power of the metal, while that of the bell would be transmitted through the medium of the air within the pipes. The ear being then placed at the remote end of the pipes, the sound of the ring transmitted by the metal of the pipes was first distinctly heard, and after a short time the sound of the bell was heard: the difference of time between the transmissions of sound

by these two mediums, for that distance, was found, after not less than two hundred experiments, to be 27 seconds; that is, the metal conducted the sound with a velocity ten and a half times greater than the air.

The propagation of sound may be aptly illustrated by the expansion of the waves which are produced by throwing a pebble into a still pond. As these waves rise from a common centre, and spread in regular concentric circles in every direction, until they are lost or impeded by some intervening substance—so sound, which is created by a sonorous body, spreads in all directions from that body, until interrupted by some obstacle, or until its power is spent, and it dies away, which it does very rapidly in the open air, especially when the atmosphere is much rarefied. Sound is reflected by hard substances, in the same manner, and according to the same laws, as light is reflected from mirrors or other substances, and hence the theory of echo. If a person's voice strikes any surface perpendicularly, or at right angles with it, it will be returned back again to the speaker; but to enable him to hear the echo, he should stand at the distance of more than 47 feet, and the greater the distance (if not too far) the greater will be the number of syllables echoed.

Having taken a brief view of the weight, composition, elasticity, and some other properties of that fluid which every where surrounds us, and which is essential to our own existence, we shall close the subject by considering it as a medium of humidity, the great agent of irrigation, and as a moving body, whose gentle agitation tempers and allays the excessive heat of the meridian sun, and wafts the whitened sails of commerce from continent to continent, from island to island, and from port to port; but whose irresistible force, when roused into a tempest or tornado, prostrates the strongest buildings, uproots the loftiest trees, and scatters the stanchest navies like chaff before the breeze.

It is a well-known fact, that the atmosphere, even in its driest state, holds a portion of water in suspension, in the form of vapour: the quantity which it is capable of thus holding, depends principally upon its temperature—being greater in warm air than in cold—this being the case, it follows, that whenever its capacity to hold vapour is increased by an increase of temperature, it will absorb, or take it up from the earth; and, on the contrary, whenever

its capacity to hold it in suspension is decreased by a decrease of temperature, it parts with a portion it already holds. A very familiar case may be cited in illustration of this position: every person has observed, that on filling a glass tumbler, pitcher, or other vessel, with cold water, in a summer's day, it will almost instantly be covered with small drops of water: it is a very common thing to hear it remarked on such occasions, (and by those too who ought to know better,) that the glass or pitcher *sweats!* and most people suppose that the water which thus appears on the outside of the vessel, actually oozes through its pores. Now the cause of this moisture collecting as it does, is, that the vessel being so much colder than the surrounding air, condenses that portion which comes in contact with it, which being thus cooled, its capacity for holding vapour in suspension is lessened, and it consequently parts with a portion of it, which adheres to the vessel. The same fact is also illustrated by the breath of a person, in a cold day: on breathing into cold air, a part of the moisture which the exhaled air held in suspension is condensed, and becomes visible in the form of vapour, not because the breath which he exhales has more moisture in cold than in warm weather; but because the moment it comes in contact with cold air it is condensed, its capacity to hold vapour in suspension lessened, and it is forced to give out a part of that with which it was saturated. The same operation takes place when a person breathes upon a window, a mirror, or other hard substance, either in warm weather or cold.

We see, then, how water may be condensed from the atmosphere; viz. by warm air, saturated with moisture, coming in contact with cold air, or other substances, by which it is itself cooled, and its capacity for holding water in suspension lessened; this is the theory of rain and snow.

The cause of rain, then, is the reduction of the temperature of a portion of the atmosphere, the capacity of which for holding water in suspension being thus lessened, the surplus, or amount which the condensed atmosphere held in the form of vapour, over and above what its reduced capacity allows it to hold, is given out, and, if near the surface of the earth, appears in the form of mist, but if the condensation takes place in the higher regions, in the form of clouds. The particles of moisture which are thus set free, conglomerate into drops, and descend to the earth: this, however, is not

always the case, for it sometimes happens, that this mist subsides into a warmer stratum of air, in which case the clouds which it formed are redissolved, and disappear. That moisture which nightly descends upon the earth, during the warm season, is produced by the change of the temperature of the atmosphere near the earth's surface. During the day, the heated atmosphere absorbs a considerable quantity, which it cannot retain at the temperature to which it is reduced after the disappearance of the sun, and it is consequently precipitated in the shape of mist or dew. The depositions of water in the form of rain, dew, snow, and hail, are more or less copious in proportion to the mean quantity of vaporous fluid that previously existed in the atmosphere, and the degree of change which the atmosphere undergoes; and hence we have sometimes gentle and refreshing showers, sometimes a drizzling, misty rain, and sometimes torrents of water, pouring down upon us as if the very floodgates of heaven were opened.

The changes of temperature by which the deposition of moisture from the atmosphere is produced are the following, namely—1st, the annual change; 2d, the daily change; 3d, the change occasioned by the transference of portions of air from one parallel of latitude to another; and, 4th, the change arising from the elevation or depression of the atmospherical strata by the inequalities of the earth's surface.* The first is the cause of those periodical storms, which are expected with as much certainty as that the sun will cross and recross the equatorial line, in the annual circuit of the earth around this common centre. The second causes those grateful, and sometimes copious dews which descend at night-fall, and refresh the parched and thirsty earth. But it is to the third cause that we are most frequently indebted for the deposition of rain, hail, and snow. It is well known to all, that rain or snow usually follows a long continued southerly wind; coming from a warmer region, this wind bears with it a greater portion of moisture than the temperature of the higher latitudes will allow it to retain, and the natural consequence is, that after it has blown a short time, a condensation and deposition of the water thus held in suspension, takes place. A northerly wind, on the contrary, coming from a colder region, has its capacity for holding vapour in suspension increased as it proceeds southerly; it is consequently drying, and is followed by fair weather.

* Edinburg Encyclopedia. [To be continued.]

NATURAL HISTORY.

THE GIRAFFE.

Camelopardalis Giraffa.

We have found some difficulty in procuring a figure which exactly represents the stately form and fine proportions of this beautiful animal. The only perfect likeness we have seen, is to be found in a recent number of the splendid work of Fred. Cuvier, and Geoff. St. Hilaire *sur l'Histoire Naturelle des Mammiferes*, with lithogra-

phic figures drawn from the life; and the cut above given is very correctly reduced from the plate in that work.

Although the camelopard was known at the early period of the Roman emperors, yet we have very little information respecting him until of recent years. We are told of his first appearance in Europe, at the games of the circus instituted by Julius Cæsar. He must afterwards, for a time at least, have been commonly shown at the public exhibitions of the Roman emperors, since he is mentioned by Pliny, Oppian, and Strabo. It is said that Commodus tested his dexterity, as an archer, on the camelopard, among other rare animals from Asia and Africa: Aurelian also exhibited him at the games given on account of the capture of Palmyra, and it is even said that no less than ten living giraffes were at one time shown to the people by the third Gordian. For a long time after the revival of letters, so unsatisfactory were the accounts of him, received from the ancient Romans, considered, and so unsupported by the testimony of travellers, that he was thought to be a fabulous animal, along with the sphinx, unicorn, and satyr of ancient naturalists.

In the beginning of the 15th century, however, an individual of this species was sent by the sultan of Egypt to Lorenzo de Medici, and removed all doubt as to his existence. Yet so imperfect were the descriptions that were made of this specimen, that he was described as having his fore legs twice the length of his hind ones, so that, when standing, he resembled an animal sitting on its haunches. Buffon among the rest followed this account of him, and this belief is still current among those who have not attended to the well proportioned form of the animal as he really appears. We owe the first correct description of him to the celebrated traveller, Mons. Le Vaillant, who has added so much by his researches in Africa to the treasures of natural science. He saw the camelopard in his natural state, hunted several of them, and killed one with his own hand. His account of them is fully corroborated by its agreement with the habits and form of the animals now, or recently, living in Europe. In 1827, two living individuals were presented by the Pacha of Egypt to the French and English kings, both of which reached their destination. The English one is since dead. The other, which is a female, is still living in vigour at the *Jardin des Plantes* in Paris, and the figure we have given is a faithful representation of the animal in her usual standing posture.

The camelopard is so named from its Latin appellation, given it from its supposed resemblance to the camel in its disposition and general form, and to the panther in its spotted skin. It is usually called Giraffe, in France, and elsewhere than in England, from the Arabian name *zarapha*, or *sirapha*. It is a ruminating animal, allied on the one side to the antelope, and on the other to the deer. In its system of dentition it is similar to the former, having eight incisive teeth in the lower jaw, and none in the upper, no canines in either, and six molars in each side of both jaws. It has a prominence above the nose and between the eyes, and two lumps or protuberances on the top of the head. Its ears are large like those of the ox. It has two short horns, or rather excrescences of the *os frontis*, which do not fall like those of the deer, consisting of a porous, bony substance, covered with skin, terminating abruptly, and surmounted by a tuft of rigid hairs, like a brush. Its eyes are full and brilliant, and so placed in the sides of its head that it can readily see behind as well as before it. The mouth is small, the upper lip extending beyond the lower, and its snout and nostrils similar to those of the horse or elk. Its neck is extremely long and slender, and in its motions is as flexible and graceful as the swan's or peacock's. It has a mane of short, rigid hairs, alternately black and yellow. The colour of the hide is, at first, of a light red, but becomes of a deeper colour as the animal grows older, and is at length of a brownish yellow in the female, and a much darker brown in the male. The spots with which the hide is covered vary in their shape, differing from round to triangular and oblong. The giraffe differs in the form of its body from other animals, the height of its withers being much greater than its rump, which has no doubt given rise to the belief of the greater height of its fore than its hind legs. Its legs are slender, but nearly of the same length; its knees are protuberant, probably from its habit of kneeling when it lies down. Its breast also has a callous process from the same reason. The feet resemble those of the ox, being cleft, and the toes separating from each other so that it can stand firmly, or climb rocky ground. The tongue is long, and is capable of being tapered so as to enter a small ring, or to enable the animal to take hold of small branches like a hook. The usual height of the full grown animal is 15 to 18 feet, from the feet to the extremity of the head. The female is smaller.

These animals live solitary in plains or in forests, in their native

countries, or in small troops of 7 or 10, browsing upon the boughs and leaves of trees, particularly a species of *mimosa* not unlike our acacia, the twigs of which are succulent, and which, with its long slender neck, it can reach without difficulty. It is capable of grazing, or obtaining its food from the ground, and Vaillant says it can drink from a river the surface of which is lower than the bank on which it stands; for this purpose its neck is well adapted, being composed of few vertebræ, (only 7, the same as in man,) and connected with those of the back by a very strong ligament. Its flesh is said to be good, and it is hunted by the Hottentots for the purpose of food. Its time of gestation is said to be twelve months, and it produces but one foal at a time. As its appearance indicates, it is an animal of great docility and mildness of disposition, never attacking when it can save itself by flight. Its horns appear to be of no use as instruments of defence; a more effectual means of repelling its enemies being found in its heels, which it is said to employ for that purpose, with great force and rapidity. The account of Le Vaillant's first encounter with the living animals, is given in his second voyage in Africa, and he details it with all the enthusiasm of a naturalist, who has first discovered one of the most interesting facts in the range of his favourite science.

"I was now struck by a mark of distinction which I perceived on one of the huts; it was entirely covered with the skin of a giraffe. I had never seen this quadruped, the tallest of all those upon the earth. I knew it only from false descriptions and designs, and thus I could scarcely recognise its robe—and yet this *was* the skin of the giraffe. I was in the country which this creature inhabits: I might probably see some living ones: I looked forward to the moment when I should be thus recompensed, at least in part, for all the sufferings and annoyances of my expedition.

"One of the Namaquas, who were my guides, came in great haste to give me information which he thought would be agreeable to me. He had observed the strong feeling of pleasure which I had evinced at the sight of the skin of the giraffe;—and he had run to say that he had just found in the neighbourhood, one of these animals, under a *mimosa*, the leaves of which he was browsing upon. In an instant, full of joy, I leapt upon my horse. I made Bernfry (one of his men) mount another, and followed by my dogs, I flew towards the *mimosa*. The giraffe was no longer there. We saw her cross the plain

towards the west, and we hastened to overtake her—she was proceeding at a smart trot, but did not appear to be at all hurried. We galloped after her, and occasionally fired our muskets; but she insensibly gained so much upon us, that after having pursued her for three hours, we were forced to stop, because our horses were quite out of breath, and we entirely lost sight of her . . . . . The pursuit had led us far away from each other, and from the camp; and the giraffe having made many turns and doubles, I was unable to direct my course towards home. It was noon—I already began to feel hunger and thirst; and I found myself alone in a sterile and arid spot, exposed to a burning sun, without the least shelter from the heat, and destitute of food." The traveller however, shot and cooked some birds of the partridge genus; and was fortunate enough to rejoin his companions in the evening. "Next morning, my whole caravan joined me again. I saw five other giraffes, to which I gave chase; but they employed so many stratagems to escape that after having pursued them the whole day, we entirely lost them as the night came on. I was in despair at this ill success. The next day, the 10th of November, was the happiest of my life. By sunrise I was in pursuit of game, in the hope to obtain some provisions for my men. After several hour's fatigue, we descried, at the turn of the hill, seven giraffes, which my pack instantly pursued. Six of them went off together; but the seventh, cut off by my dogs, took another way. Bernfry was walking by the side of his horse, but in the twinkling of an eye he was in the saddle, and pursued the six. For myself I followed the single one at full speed; but in spite of the efforts of my horse, she got so much ahead of me, that, in turning a little hill, I lost sight of her altogether, and I gave up the pursuit. My dogs, however, were not so easily exhausted. They were soon so close upon her that she was obliged to stop to defend herself. From the place where I was, I heard them give tongue with all their might; and as their voices appeared all to come from the same spot, I conjectured that they had got the animal in a corner, and I again pushed forward. I had scarcely got round the hill, when I perceived her surrounded by the dogs, and endeavouring to drive them away by heavy kicks. In a moment I was on my feet, and a shot from my carbine brought her to the earth. Enchanted with my victory, I returned to call my people about me, that they might assist in skinning and cutting up the animal. Whilst

I was looking for them, I saw Klaas Baster, (another of his men,) who kept making signals which I could not comprehend. At length I went the way he pointed, and, to my surprise, saw a giraffe standing under a large ebony tree, assailed by my dogs. It was the animal I had shot, who had staggered to this place; and it fell dead at the moment I was about to make a second shot.

"Who could have believed that a conquest like this would have excited one to a transport almost approaching to madness. Pains, fatigues, cruel privation, uncertainty as to the future, disgust sometimes as to the past—all these recollections and feelings fled at the sight of this new prey. I could not satisfy my desire to contemplate it. I measured its enormous height. I looked from the animal to the instrument which had destroyed it. I called and recalled my people about me. Although we had combatted together the largest and most dangerous animals, it was I alone, that had killed the giraffe. I was now able to add to the riches of natural history. I was now able to destroy the romance which attached to this animal, and to establish a truth.—My people congratulated me on my triumph.—Bernfry alone was absent; but he came at last, holding his horse by the bridle. He had fallen from his seat, and injured his shoulder. I heard not what he said to me.—I saw not that he wanted assistance; I spoke to him only of my victory.—He showed me his shoulder; I showed him my giraffe.—I was intoxicated, and should not have thought even of my own wounds."

SCHOOLS, SOCIETIES, &c.

TRANSACTIONS OF THE NEW-YORK HORTICULTURAL SOCIETY.

The most interesting era of the Society occurs at the anniversary, when the annual exhibition of fruits is given. On this occasion the display was uncommonly brilliant and plentiful. The address was delivered by the Corresponding Secretary of the Society, the chief topic of which was an exposition of the bountiful nature of our climate, and its adaptation to the finest kinds of fruit and flowers, which are the most ordinary subjects of the science of Horticulture. No better practical illustration of the pre-eminence enjoyed by

our country could be required than the rich exhibition which graced the tables, and decorated the splendid saloon where the Society assembled. From the number of contributors it is fairly to be inferred that the taste for the pleasures of gardening is increasing among our citizens. The majority of the fruits were in full maturity, but some of them, as the grape, seemed to require a longer time for ripening. A fact which is to be borne in mind in forming an estimate of these fruits, is, that they were all produced in the open ground, without any protection, and scarcely with any other care than the common agricultural staples of the country. The only exceptions which were noticed were two samples of grapes raised under glass, and some pine-apples.

The committee under whose charge the exhibition was managed, acknowledge their obligations to several ladies for donations of fruit and flowers, and attribute the tasteful arrangements of the beautiful ornaments of the table to their assistance. The Society are also grateful to their friends in Boston, Philadelphia, Baltimore, and several other places, for contributions of the highest interest. As the exhibition affords materials for illustrating the natural history of our vicinity, we deem it of sufficient importance to require a notice of the prominent articles presented.

Some home-made wine, from the Scuppernong grape, which was pronounced excellent, made at the plantation of Gen. D. N. Bateman, Tyrrel county, North Carolina, was presented by Miss Allen Wyckoff.

Boquets of splendid flowers, arranged with great taste, were offered by Miss Roome, of Greenwich, and Miss F. H. Oakley.

Mrs. Mary Schmelzel, Greenwich-street, presented five bunches of beautiful white grapes, each weighing nearly a pound, and some choice bunches were received from a lady in Stone-street.

The following presentations from neighbouring states were particularly noticed:

From Mr. Samuel D. Walker, of Baltimore, samples of the *grapes* usually grown in that city, viz: Hungarian or Bordeaux purple; Golden Chasselas; Red Chasselas; Sultana; Vevay, of American origin, and White Muscadel. From the garden of Mr. Bastion, some specimens of the fruit of two kinds of *Eugenia*, and a *Pine-apple*. From Mr. B. J. Cohen, a *Pomegranate*, nearly ripe, some *Egg-plants* and *Plums*; and from Mr. Hooper, some excellent

Peaches. From R. L. Patterson, Esq. some very fine Plums and Peaches. From the vinery of Mr. Perkins, of Boston, a superb assortment of Grapes, raised under glass, of the Muscat of Alexandria; Grisley Muscat, and white ditto; white and red Chasselas; black Hamburg and Cape Black. All these were remarkable for their size, which was nearly double that of the same sort grown in our open ground.

From Mr. Downs, of Boston, some of his excellent Pears, which were finer than any of the same sort that had been presented during the season. They were of the varieties known as Bartlett, Andrews, Cushing, Harvard, and St. Ghelien Pears.

From Lewis Little, Esq. of Hudson, a box containing samples of six varieties of Grape, cultivated by him at that place.

From Isaac Deniston, Esq. of Albany, some of his superior Plums, viz. White Holland, German Gage, Queen Claude, Yellow Gage, Royal Blue Gage, Green Gage, Schuyler Gage, Chancellor Gage, Bancker Gage, Red Gage, and a seedling called the Eleanor Plum.

The following is a list of the principal sorts of fruit grown in the vicinity of the city, and the donors:

Water-melons: a very fine one from N. Prime, Esq. weighing 49 1-2. lbs., and of a very solid pulp and remarkably thin rind. A lot was also presented by Dr. Hosack, one of which weighed 42 1-2 lbs.

Grapes: a very great variety of these were observed, such as the Isabella, from Mr. Saltus, and from Mr. W. R. Cooke; a branch of this kind of grape was offered by Mr. Cooke, 5 feet in length, from a vine 3 years old, bearing 103 clusters of fine fruit: the vine still carries about 1500 bunches. Mr. Prime presented several varieties, grown under glass, of very luxuriant size; such as the Black Prince, White Hamburg, Frontignac, Black Hamburg, and Blue Burgundy. From Mr. Saltus, Golden Chasselas, several of the bunches exceeding a pound weight. From Mr. Lambert Suydam, White Sweetwater, from a vine planted in 1827, which has borne this year upwards of 100 bunches. White Muscadine, and Red Hamburg, from Mr. E. Wade, jun. Some very fine Chasselas from Mr. James McBrair. White Sweetwater, from Mr. E. White. White Muscadine and Miller's Burgundy, from Mr. Alex. Masterton. From Mr. Cooke, some Miller's Burgundy, and also of that

sort, and White Sweetwater from Alderman Wells. Fontainbleau, Chasselas, and œil de tour Grape from Capt. C. Holmes, and a choice assortment from the vineyard of Mr. A. Loubat, all from vines three years old, and grown in the open air; such as the Malvoisie, Fontainbleau, Souvignon, Blanquette, Chasselas, Claret, Bouteillant, Black Hamburg, and several others. Some excellent White Grapes from Dr. Hosack, and from Mr. C. Oakley.

Plums.—Some most excellent specimens, for size and flavour, of the magnum bonum, from Captain C. Holmes, several of which weighed nearly 3½ ounces. From Mr. E. H. Warner, some violet plums; and some beautiful golden magnum bonum, from Mr. E. White.

Nectarines.—Freestone and Roman, from Mr. Oakley. Golden nectarines from Mr. E. H. Warner; and red Roman, from Mr. Cooke.

Peaches.—The President peach, from Mr. Oakley, and Alderman Wells; and several seedling sorts, like a freestone nectarine, from Mr. Oakley; a branch, bearing a quantity of fine Lemon clingstones, one of which weighed 7½ ounces. Heath clingstones, and Oldmixon clingstones, from Alderman Wells.

Apples.—Two seedlings, of very excellent sorts, and the green Reinette, from Mr. Alexander Smith.

Pears.—From the same gentleman, Brown Catharine pears. Virgouleuse, of very fine quality, from Mr. Timothy Whittemore.

Quinces.—Some fine ones, from Mr. E. H. Warner.

Figs.—A dish of ripe figs, raised in the open air, by Mr. Timothy Whittemore, and a quantity from Mr. J. F. T. Duflons, one of which measured 7¼ inches in circumference.

Musk-melons.—A lot of the most delicious in flavour, was presented by Mr. John Law; one of these, called the Netted-green-flesh melon, weighed 5½ pounds, and the Murray Pine-apple, 3 pounds, 14 ounces.

Egg-plants.—Two large sorts, weighing 4 pounds, and 4 pounds 5 ounces, from Mr. George Still. Some of the white kind were presented by Mr. J. B. Crane, and by Mr. J. Law.

For a profusion of the most beautiful flowers, with which every recess, not occupied by the fruit, was decorated, the Society are indebted to Messrs. William Prince, of Flushing, Mr. Wilson, of Murray-Hill, D. Kenney, Greenwich, T. Bridgeman, T. Kinnersley,

William Neale, and Samuel Maynard, of Brooklyn. Most of these were arranged in bouquets, festoons, and other tasteful combinations. Besides these, there were very interesting additions to the exhibition in the choice and rare specimens offered by Mr. Thomas Hogg, among which we hastily noticed the following:—The Coffee-tree; Thunbergia alata; Ardisia crinita; Acacia elegans and verticillata, Phormium tenax; Pittosporum chinense; Lantana camara; Begonia evansii; Calceolaria salicifolia; Tradescantia rosea; Eugenia jambos, Cupressus australis; Magnolia grandiflora; Amaryllis candida; several species of Protea, Strelitzia regina, and others.

Mr. Michael Floy, also offered a bouquet, the flowers of which were equally luxuriant and rare of their kind, such as the Plectrocephalus Americanus, or large flowering centaurea of our country; Hibiscus rosa sinensis; Cassia nepaulensis; Lantana camara; Nerium splendens; Plumbago capensis; Petunia nyctaginiflora; Gordonia lasianthus.

A choice collection was also presented by Mr. William Phelan, among which were several orange-trees, in fruit; Eucomis punctata; Amomum plinii; many geraniums, roses, China asters, balsamines, &c.

September 14.—At the weekly exhibition of this date, Mr. J. Groshon presented some large and well-flavoured Lemon clingstone peaches, raised by himself, from the seed.

Mr. Alexander Smith presented some fine Bergamot pears, some brown spice ditto; some of his new seedling apples, and a quantity of the large European filberts, which he cultivates with great success at his grounds in Newark.

Mr. McBrair exhibited some of a fine sort of peach, raised by him from seed, similar to the Melecoton variety: 4 of these weighed a pound.

September 21.—This exhibition, though otherwise very meager, was of great interest from the display of two specimens of freestone peach, which had not heretofore been offered to the notice of the Society; one of these was presented by Mr. N. Saltus, and measured ten inches in circumference, and was of exceedingly delicate flavour. Another specimen, also, of a freestone variety, was presented by Mr. Van Beuren, raised by him from seed, and of the same size and weight, but uniformly yellow throughout.

SCHOOL FOR THE BLIND IN PARIS.

Some gentlemen in New England have recently drawn the attention of the public to the condition of the blind in the United States: hitherto, while their companions in misfortune, the deaf and dumb, have been in a manner restored to the world by liberal institutions, the blind have been neglected. Deprived by accident or nature of the noblest sense, the eyes of their minds have remained closed for want of adequate instruction. A few talented individuals have proved that the blind may become eminent in the arts and sciences. De Piles has recorded an account of a sculptor, who modelled an admirable bust of the Duke of Bracciano, and carved with exactness a marble statue of Charles the 1st. As poets, Homer and Milton are among the first; Sanderson and Dr. Mayers were eminent as mathematicians, while Salinas, Crumbhorn, and Presenti* establish the possibility of musical excellence being attained by the blind. But these examples do not astonish us, as we well know that those who are deprived of one sense, possess the others in much greater perfection.

Much has been done, and is now doing, in Europe, to improve the condition of the blind: institutions exist in England, Scotland, Germany, and France, which have conduced much to the happiness of those unfortunate beings, who can never again behold

> ——"The sweet approach of even or of morn,
> Or sight of vernal bloom, or summer's rose,
> Or flocks, or herds, or human face divine."

We never attended an exhibition with more pleasure or delight, than one at the school of the blind in Paris. As the subject may be new to our readers, we will give a detail of our visit, and shall be satisfied if it shall awaken the attention of a liberal public, and excite them to continue the good work already commenced by the Bostonians.

This school is at present in the care of Guilieu; at the time of

*Salinas was professor of music in Salamanca: he died in 1590. Crumbhorn was director of the musical college at Lignitz in Silesia. Presenti was a Venetian, composed music of all kinds. We need not, however, refer to past centuries, as we have seen several pieces of music which were composed by the pupils of the school for the blind in Paris.

our visit there were sixty male, and forty female pupils : the instructers are most of them blind. We were first introduced into a large hall, where we heard a concert of vocal and instrumental music, selected principally from favourite Italian and French operas ; the orchestra was good, thirty blind young men performed upon the usual instruments, and occasionally there were solos upon the horn, flute, violin, and piano, which were excellent. After the concert, which continued about two hours, we visited the refectory, where a table was spread for 70, with the utmost neatness. The work rooms were up stairs ; here the male pupils are employed in weaving cloth, in making baskets, whip-handles, chains, over-shoes of list, rope, cord, and twine. On the walls of the room were printed 1st and 2d classes in Grammar, Geography, Music, Geometry, &c. ; at which we were not a little surprised. Passing into another apartment, we saw some people engaged in setting up types, for works used in the school ; one of them being asked his name, instantly selected the types which would print it, arranged them, and showed it to us ; others were pressing off a portion of the New Testament.

The types used for printing are larger than the common types—the paper much thicker, and when placed on the form, is more *wet* than usual ; hence the letters appear in bolder relief, are more raised, and in fact, more tangible. The books are also bound by the blind.

In the writing department, we saw some young men just beginning to learn, by tracing the forms of the letters, which were cut deeply in a plate of brass : the pupil is exercised upon this till all the letters are familiar. Paper is then used to write upon, the distances between the letters being measured by a frame, or comb of brass, the teeth of which are half an inch apart. By another arrangement they are enabled to read what is written. To teach them geometry, pasteboard charts are employed, upon which are geometrical figures, such as polygons, triangles, circles, &c. of brass.

Besides these, the course of instruction for the males comprises music, geography, the Latin, Greek, English, and Italian languages ; in fact, every thing necessary to a thorough classical education.

We next visited the working departments of the females : while some were employed in spinning and knitting, others were making purses and work-bags of silk of different colours—these were neatly finished, and it was curious to observe how strictly was the suc-

cession of colours, and how uniformly the pattern was preserved. Artificial flowers, baskets, chair-bottoms, &c., are also made by the females. They seemed so cheerful and happy at their work, that we could not but contrast their condition with what it must have been had no such institution been founded.

We now passed into the "chamber of study:" a book was opened, and a girl placing her finger upon the page, read it without hesitation, having acquired the knowledge of the letters by feeling the surfaces of metallic types. Here we saw also the geographical charts used by the pupils; on them the different countries are bounded by rims of brass, and the capital cities are denoted by raised dots; on a corresponding key the *names* of the countries are printed in relief, as also the names of the cities, and thus by using both the maps and key, the pupil, by the sense of touch, becomes acquainted with the relative situations, &c. of the different parts of the globe.

Connected with the school is a library which contains grammars of the different languages, selections from Latin authors, portions of Scripture, works on History, &c. &c. These books are necessarily large, as the paper is thick, and one side only of a sheet can be used. The gospel of St. John occupies no less than three volumes.

We also visited the chapel where matins and vespers are said every day: near the chapel is a room which contains three inscriptions; one to the memory of Hauy, who did much to perfect this system of tuition; a second to Paingeau, a pupil of this school, who obtained the prize of the Lyceum, was afterwards a Professor at Augens, and a member of the Legion of Honour; while a third stated the period when the school was separated from the hospital with which it was formerly connected.

We have been thus minute in the account of our visit to this valuable institution, as we wish our readers to know how much *may* be, and actually *is* done for this unfortunate class of persons in France.

It has been estimated, we believe, that there are over 1000 persons in New England alone, (and if this be the case there are probably not less than three or four thousand in the United States,) who with Milton might exclaim,

> But thou, celestial light,
> Revisit'st not these eyes, that roll in vain
> To find thy cheering ray, and find no dawn;
> But clouds instead, and ever-during dark
> Surround me."

PROCEEDINGS OF THE LYCEUM OF NATURAL HISTORY.

Aug. 23.—A specimen of *Selenurite* of *Palladium*, with lead and silver from the Hartz mountains in Germany, also of *Pyrochlore* from Norway, were presented by Dr. Feichtwanger, together with specimens of the bivalve *Unio complanatus* from the Schuylkill river. The same gentleman read a paper on the subject of analyzed minerals arranged according to the electrochemical system of Berzelius, which, as usual, was referred to the publishing committee.

Mr. Cooper exhibited a plate of a species of Hawk, sent from this country to France, and there published by Temminck, under the name of *Falco regalis.* This bird Mr. Cooper considers as identic with the ash-coloured Hawk of Wilson, *Falco atricapillus*, and he also considers that the specific difference between this American Hawk and the Goshawk of Europe, which has been denied, is sufficiently established.

Aug. 30.—Specimens were laid on the table of various fossil, animal, and vegetable substances, from the chalk formation in England, presented by Mr. Mead.

Several numbers of a paper published at New Harmony, called the 'Disseminator,' were received. These papers contained a valuable essay, in part, on North American Insects, by Mr. Say.

Sept. 6.—Dr. Graves presents *Lignite* from Deep-cut, Baltimore rail-road, several fossil *Echini* from Cuba, together with *calcareous spar* and *asphaltum*, from the same island.

Mr. Robertson presents specimens of minerals and shells from the Morea, the Ægean Isles, and Smyrna.

A work was received entitled the Transactions of the Agricultural and Horticultural Society of Calcutta.

Dr. Feitchtwanger read a paper on a new mineral which he has discovered, and to which he had given the name of *Æschyonite.*

Sept. 13.—Dr. Eights, a member who had accompanied the expedition despatched from this port to explore the south and west Pacific ocean, presented a marine Insect, found at sea in the intestines of a species of Cod, and apparently allied to the *Trilobite*, which was referred to a committee to be examined.

The President laid on the table a dried specimen of a species of *Mesembryanthemum*, brought from Teneriffe, where it forms a part of the composition of barilla, presented by captain Groves.

Several specimens were exhibited of the three-thorned Acacia, or *Gleditschia triacanthos*, which had been completely girdled, and almost cut through by an insect. An imperfect individual of the insect, was also presented, which appeared to be identic with the *Lamia*, which destroys in a similar manner the limbs of certain trees in the West India Islands, particularly at St. Vincents, as described by the Rev. Lansdowne Guilding, in the Transactions of the Linnæn Society of London. The subject was referred for further information.

A specimen was received from Dr. Russel, of the U. S. army, of the *Proteus* of our Lakes.

September 20.—Dr. Eights presents a specimen of a marine Crustacea, from the South Shetland Isles; referred to a committee for examination.

Mr. Thomson offers a mineral, supposed to be *Bronzite*, from Warwick, Orange county.

The President presents a specimen of *black blende*, in white primitive marble, from Yonkers, New-York.

The curious subject of the scratches, or strait grooves, which are to be observed in the gneiss rocks, on this island, and which are always found in one uniform direction, nearly north and south, excited some attention and discussion among the members. It was suggested by Dr. J. A. Smith, that if they are always found parallel with the stratification of these rocks, the scratches might be accounted for from the disintegration of the softer strata; but further examination was necessary to decide their exact character and direction.

MECHANICS' INSTITUTE.

Gentlemen—I have been highly gratified by the perusal of your Magazine, and the inspection of it having led me into some reflections, I take the liberty of thus addressing you. It appears to me that a work such as yours, has been long wanting in this country, and so desirable a production cannot, I trust, fail of success. My chief object in this, is to draw your attention to the subject of Mechanics' Institutions. I think it a matter of infinite regret that no establishment of this kind has been successfully formed in this large

city. I am aware that one has been attempted, and failed—this has been owing, I suspect, to the introduction of jarring subjects, unconnected with arts, science, or literature, to which latter such places should be wholly devoted. I had, within the last two years, an opportunity of inspecting, and learning all particulars relative to the London Mechanics' Institution, and some of these I will beg briefly to lay before you; and should further and more minute information be wished, I shall be happy to furnish it. They have public lectures twice a week, throughout the year; a library of more than 4000 volumes, for the use of the reading-rooms, and for circulation among the members; they have schools for teaching mathematics, architecture, perspective, and various other branches of knowledge, and a member's subscription for the whole of these privileges, is something less than six dollars, annually.

It would have been impossible to forward so admirable an object without the assistance of individuals of more than ordinary talent and influence, and these have not been wanting. Amongst them, the celebrated and excellent Dr. Birkbeck stands pre-eminent, as having been the chief means of its formation and success; indeed, this amiable gentleman has been ever ready to lend his powful assistance, in every possible way, as events amply testify. That distinguished statesman, Mr. Brougham, has nobly co-operated in bringing this valuable institution to its important uses. I could mention many others who have also lent their efficient aid; and it has been, and is, a pleasing matter for contemplation, to observe characters of this genuine stamp, attending the meetings of the members, either as lecturers themselves, or auditors, thus aiding and promoting the means of increase of knowledge to all classes of their fellow men.

I could state instances of persons, now very capable of instructing others, who are ready to admit, that but for the London Mechanical Institution, they must have still been in a state of mere ignorance. After the example set by the metropolis, numerous establishments of the same kind sprung up in various parts of England; and we certainly have, in the Franklin Institute, one in this country of unquestionable value. I trust my brother citizens need only a movement to be made, to join cordially therein; and surely we have in New-York, gentlemen of science, wealth, and perseverance, sufficient, to lend their influence to such a noble object—and, like their

compeers above alluded to, there is little doubt they will gain to themselves the glorious satisfaction of seeing their efforts crowned with complete success.

M.

AMERICAN INSTITUTE.

This is one of the few *active* and efficient societies of the commercial metropolis. Its leading objects are the encouragement of domestic industry, and the improvement of American arts and manufactures. It is divided into four departments, namely *Agriculture*, *Manufactures*, *Commerce*, and the *Arts*. With the view of exciting emulation among our artisans, and of showing the public what *is* and *can* be done by American skill, the Institute have adopted the plan of holding Annual Fairs, for the exhibition and sale of articles of domestic manufacture. The first was held about a year ago, when a great number of specimens of domestic manufacture were exhibited, and over one hundred premiums awarded. The next, it will be seen, by reference to the advertisement of the Executive Committee, upon our cover, is to be held on the 12th and 14th of October, and from the great exertions of the committee, and the inducements which they offer to mechanics and others, to exhibit specimens of their skill, we have no doubt it will be a splendid exhibition. We understand that particular attention will be paid to articles manufactured in private families, and that they will separately be made the subject of premiums.

MISCELLANY.

PERSEVERANCE UNDER DIFFICULTIES.

The late Professor Heyne, of Gottingen, was one of the greatest classical scholars of his own or any other age, yet he had spent the first thirty-three years of his life not only in obscurity, but in almost incessant struggle with the most depressing poverty. He had been

born, indeed, amidst the miseries of the lowest indigence, his father being a poor weaver, with a large family, for whom his best exertions were often unable to provide bread. In the memoirs of his own life, Heyne says:—"Want was the earliest companion of my childhood. I well remember the painful impression made on my mind by witnessing the distress of my mother when without food for her children. How often have I seen her, on a saturday evening, weeping and wringing her hands, as she returned from an unsuccessful effort to sell the goods which the daily and nightly toils of my father had manufactured." His parents sent him to a child's school. Having learned every thing comprised in the usual course of the school, he felt a desire to learn Latin. A son of the schoolmaster was willing to teach him at the rate of four pence a week; but the difficulty of paying so large a sum seemed insurmountable. One day he was sent to his godfather, who was a baker, in pretty good circumstances, for a loaf. As he went along, he pondered sorrowfully on this great object of his wishes, and entered the shop in tears. The good tempered baker, on learning the cause of his grief, undertook to pay the required fee for him—at which Heyne tells us he was perfectly intoxicated with joy, and as he ran, all ragged and barefoot, through the streets, tossing the loaf in the air, it slipped from his hand, and rolled into the gutter. This accident, and a sharp reprimand from his parents, who could ill afford such a loss, brought him to his senses. What sustained his courage in these circumstances (we here use his own words) was neither ambition nor presumption, nor even the hope of one day taking his place among the learned. The stimulus that incessantly spurred him on was the feeling of humiliation of his condition, the shame with which he shrunk from the thought of that degradation which the want of a good education would impose upon him—above all, the determined resolution of battling courageously with fortune. He was resolved to try, he said, whether, although she had thrown him among the dust, he would not be able to rise by his own efforts. His ardour for study only allowed himself two night's sleep in the week; and all the while his godfather (not the good tempered baker, but another, a well endowed but parsimonious churchman) scarcely ever wrote to him but to inveigh against his indolence—often actually addressing his letters on the outside, "To M. Heyne, idler, at Leipsic." *Lit. Gaz.*

THE GYPSIES.

The gypsies have been the subject of speculative inquiry since their first introduction into Europe. How they came, or from what source they sprung, are questions that still remain involved in obscurity, though it is generally supposed they must have descended from the Egyptians. They were first observed about the middle of the fifteen century, and, from their novel appearance, excited universal wonder. They appeared in different parts of the continent, and among the principal islands, in hordes, consisting of a hundred together, shunning the abodes of cities, and dwelling in huts of their own rude manufacture. They never remain stationary for any length of time, but wander about from place to place, without any settled habitation. The appearance of the men was singularly forbidding; characterized by a dark scowling aspect, with swarthy complexion, and a look of thievish cunning, their looks inspired the beholder with a kind of dread, which their unsocial habits were little calculated to overcome; still many, on their first appearance, charitably thought it was possible they might be pilgrims from the Holy Land, but their iniquitous practices soon betrayed the fallacy of such a supposition, and they were generally regarded with suspicion and detestation. From the period of their first introduction into Europe, no evident alteration has taken place in their character, and though centuries have elapsed, still they are the same rude, ignorant, barbarous race their first appearance denoted.

The gypsies are generally well formed; the women, some of them, good looking, having fine black eyes, and beautiful teeth. They pretend to a spirit of divination, and impose upon the credulous by telling fortunes—this they perform by looking at the palm of the hand, or some particular moles, or by examining the physiognomy. They not unfrequently get up dramatic exhibitions, but stealing is their principal support; and some live by the wages of prostitution. They are excessively fond of finery, and seldom scruple at the means of obtaining it. They are mostly scantily clothed, and yet it is not unusual to see, with all their rags, gay coloured ribands, and a gaudy red coat, thrown carelessly over their shoulders. The children are sometimes covered, but more generally go quite naked, and when they are grouped together by the side of a hedge, under a spreading tree, or round a fire which is placed in the

centre of their huts, they would form a striking group for the painter. With their food they are indifferent, frequently taking it raw. Carrion, it is said, they consider rather a luxury.

There has been an account given in the year 1782, of a band of gypsies in Hungary, that were destroyed, having been convicted of numerous crimes, and among others that of eating human flesh. This, however, is doubtful—though, like the Jews, they have been hunted from place to place, their crimes have been more against the property than the persons of those with whom they dwelt. They are extremely indolent, never manifesting the least disposition to provide by industry for the future. The women can neither sew nor spin, and the men follow no regular occupation. They never meddle with religious matters, but conform to any sect they happen to be with. They have no particular rites of their own, but believe that when a person dies, he is at once annihilated. The men are jealous of their wives, whom they marry at an early age, and if they are displeased with them, they either dismiss them at once, or punish them as they think proper. Both sexes are excessively fond of their children—they are, however, educated to steal, and commit other depredations: indeed they seem to inherit the depravity of their parents, and readily acquire, and expertly practice the lessons they receive. There have been repeated attempts to civilize and reclaim these wretched outcasts, but all in vain: they still prefer their wandering, miserable life; and repeated, but unsuccessful attempts have been made to drive them entirely from the continent of Europe. In the statutes they are numbered with the vagabonds, and severe penalties have been enacted to prohibit their remaining in the land. They, still, however, are to be seen wandering through the country, a disgrace to the human family, and a nuisance and curse to the community.

NEW PUBLICATIONS.

If the modern-antients had reason to believe that Dr. Faustus had entered into a league with the devil, because he could supply them with Bibles, so much more rapidly, and so much cheaper than they had previously been supplied, what would they think of the

fecundity of the press at the present day? To say nothing of other cities, there is scarcely a day passes that does not bring with it some *new publication* from the prolific presses of this city. Among the most active and enterprising purveyers for the public literary taste, are the Messrs. HARPERS, from whose press has lately issued a series of numbers of the "Family Library," a popular, and very interesting work. The first, second, and third numbers, comprise "the History of the Jews," by H. H. Millman; the fourth and fifth are "Lockhart's History of Napoleon Bonaparte;" the sixth is "The life of Nelson, by Robert Southey;" the seventh, "the Life of Alexander the Great, by I. Williams;" and the eighth, which has just issued, "A History of Insects." These are all from the pens of distinguished men, and are really worth possessing and being read, though they are probably less sought after, and less profitable to the publishers, than the thousand and one novels with which their press teems, and to which there seems to be no end: the fact, however, depends on public taste, and so long as a large majority of that public prefer novels to knowledge, so long will they be supplied.

Among other late publications which fell in our way, and which we recommend to our readers as both *useful* and *entertaining*, are "Consolations in Travel, or the last days of a Philosopher, by Sir H. Davy," a work of sterling merit; "The Christian Philosopher, by Thos. Dick;" a valuable book; "A treatise upon the Steam Engine," by Professor Renwick, of Columbia College; "A system of Natural Philosophy, designed for the use of Schools," but which "children of larger growth" might peruse with profit, by J. L. Comstock; "An Address before the Association of the Alumni of Hamilton College, by Gov. Cass;" and last, *and* least, "the Boy's own Book, a complete encyclopedia of all diversions, athletic, scientific, and recreative, of boyhood and youth."

PRUDENCE.

"Prudence consists in selecting the proper times, and seasons for every enterprise, and the best means of ensuring success: in knowing when to speak, and when to be silent; in foreseeing and

providing for approaching ills. It is one of the most *useful*, but at the same time the most difficult to acquire, of all the virtues; it smooths the path of life, and is the mother of success; with it, a man will scarcely fail to attain to wealth and distinction; without it, he cannot hope to acquire either: it is the moral compass by which the wise will steer his bark upon the tempestuous sea of life.

AN EASY AND EXPEDITIOUS METHOD OF ASCERTAINING THE HEIGHT OF A STEEPLE, TOWER, MONUMENT, &c.

Take two sticks of any but equal length, and holding one perpendicular, place one end of the other against its centre, so as to form a right angle with it; having done this, place your eye at the other end, and advance towards, or recede from, the object the height of which you wish to ascertain, until the upper and lower ends of the perpendicular stick shall appear to touch its top and bottom at the same time; then from the spot on which you stand, measure the distance to the foot of the object, and this will be its exact height.

CENSUS.

Population of some of the principal cities, towns and villages in the United States, according to the enumeration now being taken.

	In 1820.	In 1330.
Albany,	12,630	24,216
Alexandria, D. C.		8,221
Annapolis, Md.	2,260	2,618
Auburn, N. Y.	——	3,326
Attleborough, Mass.	3,055	3,221
Andover, Mass.	3,889	4,528
Boston,	43,298	about 61,000
Baltimore,	62,738	80,519
Buffalo, N. Y.	——	6,353
Carlisle, Penn.	2,908	3,705
Charlestown, Mass.	6,591	8,783
Cincinnati, O.	9,642	25,279

	In 1820.	In 1830.
Danvers, Mass.	3,646	4,221
Detroit,	——	2,222
Easton, Penn.	2,370	3,523
Fredericktown, Md.	——	4,427
Greenbush, N. Y.	——	2,194
Harrisburgh, Penn.	2,290	4,307
Hartford, Conn.	6,910	9,617
Hagerstown, Md.	2,757	3,257
Ithica, N. Y.	——	3,234
Lancaster, Penn.	6,633	7,684
Lowell, Mass.	——	6,477
Lynn, Mass.	4,515	6,130
Litchfield, Con.	4,640	4,474
Lexington, Ky.	——	6,087
Middletown, Con.	6,479	6,876
Newburyport, Mass.	6,852	6,375
New-Bedford, Mass.	——	8,000
New-Castle, Del.	1,025	1,009
New-Haven, Con.	8,327	10,653
New-London, Con.	3,330	4,440
North Providence, R. I.	——	3,503
Norfolk, Va.	8,478	10,000
Ogdensburgh, N. Y.	——	1,564
Portland, Me.	8,560	12,521
Petersburgh, Va.	6,690	8,300
Plattsburgh, N. Y.	3,753	4,908
Pittsburgh, Penn.	——	about 23,000
Reading, Penn.	4,332	5,631
Rochester, N. Y.	1,502	8,320
Salem, Mass.	12,731	13,886
Schenectady, N. Y.	——	4,287
Utica, N. Y.	——	8,324
Washington City,	——	about 20,000
Wheeling, Va.	1,567	5,211
Wilmington, Del.	5,268	6,628
Worcester, Mass,	2,962	4,669
York, Penn.	35,75	4,208
Zanesville, O.	2,714	4,092